Missouri Botanical Garden Bulletin

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World Wildlife Fund Comes To The Garden

More than a dozen leading scientists in the field of conservation came to the Missouri Botanical Garden to present reports on their varied projects to Garden Members and other interested citizens during a program entitled "An Evening with the World Wildlife Fund" on December 10.

The evening presentation was presented in conjunction with the first-ever meeting of the board of directors of the World Wildlife Fund-U.S. (WWF-US) in St. Louis. The Garden was chosen as the site of the meeting because Garden Director Peter Raven is a member of the World Wildlife Fund's board of directors, and in recognition of the Garden's leadership role in botanical research and preservation of tropical rainforests.

The World Wildlife Fund-U.S. is the principal private American organization engaged in conservation projects around the world. It is non-profit and independent, yet maintains an affiliation with World Wildlife Fund-International in Switzerland. Since its founding in 1961, the Fund has made grants totalling over $65 million to more than 3,000 scientific research, education, and wildlife and habitat preservation projects in 130 countries around the world. It has helped create or support 260 national parks on five continents and has helped rescue many endangered species of animals and plants from extinction.

The arrival of the World Wildlife Fund's staff and directors to St. Louis prompted Mayor Vincent Schoemehl to proclaim December 10, 1984 World Wildlife Fund Day and offered Fund members an opportunity to examine first hand the Missouri Botanical Garden and its programs.

World Wildlife Fund-U.S. President Russell E. Train noted that the Fund achieves its conservation objectives both through its own professional staff and through grants to other institutions. The Missouri Botanical Garden, in a consortium with the New York Botanical Garden and the Arnold Arboretum, is the recipient of a Fund grant to develop a world strategy for the botanical inventory of tropical forests.

Dr. Thomas Lovejoy, WWF-US vice president for science, pointed out that life on Earth has managed to adapt to an extraordinary variety of conditions, and the adaptations of the millions of species of plants and animals to this variety offers human beings an opportunity to improve our own condition if we make the effort to preserve and study them. "Our world cannot be made safe for people without the biological diversity which World Wildlife Fund seeks to protect," he said.

"Earth's plants are without doubt the most diverse manifestation of life on our planet," noted Dr. Linda McMahan, director of TRAFFIC (USA), the WWF's plant conservation arm. "Indeed, the plant kingdom could well be considered the basis for all other life," she said. "Yet, shockingly, more than one out of every ten of the Earth's plant species are in danger of extinction—a number estimated to be in excess of 25,000 species."

Mark Plotkin, a WWF botanist, explained the Fund's International Plant Campaign. He said the purpose of the campaign

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Russell E. Train (center) with Dr. Raven (left) and John H. Biggs, President of the Board of Trustees (right).

Russell Train Receives Greensfelder Award

Russell E. Train, president of the World Wildlife Fund—U.S., was presented the Missouri Botanical Garden's Greensfelder Award for Conservation at ceremonies during an Evening with the World Wildlife Fund.

Train has been president and chief executive officer of the Fund since 1978. He is also vice president of the International Union for Conservation of Nature and Natural Resources, director of Resources for the Future, Alliance to Save Energy, Citizens for Ocean Law, Scientists' Institute for Public Information, and American Conservation Association. Train was also administrator of the U.S. Environmental Protection Agency from 1973 to 1977 and a member of the National Water Commission.

The Greensfelder Award was established in 1980 by Albert P. and Blanche Y. Greensfelder to honor individuals who have made substantial contributions to promote a better environment through conservation and urban improvements. Previous recipients of the Greensfelder Award include August A. Busch, Jr., Wayne C. Kennedy, Leonard Hall and Roberto Burle Marx.

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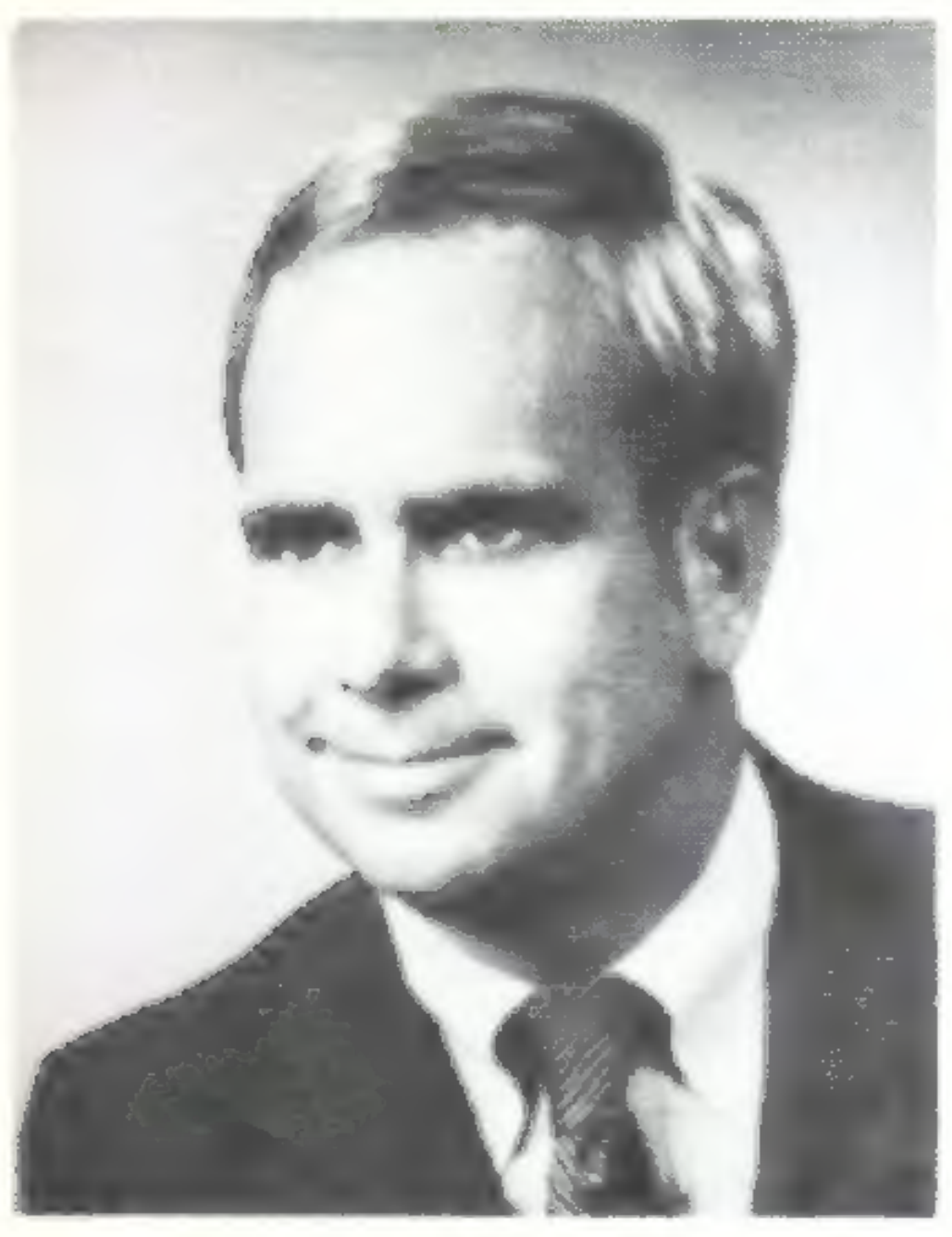


In this issue of the *Bulletin* are several articles which call attention to the importance of plants to the survival of mankind and other life on Earth. Many individuals and organizations, including the Missouri Botanical Garden, are deeply involved in various efforts to preserve and study plant life.

Senator Danforth challenged the Missouri Botanical Garden to take a leading role in developing methods to eliminate the suffering in Africa in his address at the annual Henry Shaw Associates Dinner in November (see page 4). We are doing our best to meet that challenge by continuing our collecting and research on plants from the tropics, some of which may contain answers to food and medicinal production in the future.

Our current botanical research staff consists of more than two dozen scientists and numerous other professionals engaged in all phases of plant research. They are making tremendous strides under less than ideal conditions. A major hinderance to their work is a lack of appropriate facilities. Our number one priority this year, in terms of capital improvements, is the remodeling of the John S. Lehmann building.

This building, which houses our library, herbarium and botany staff, needs $2 million in changes and improvements to allow the staff to perform at their best today and in the years ahead. We are already well on our way to raising the necessary funds for the renovation, having raised $585,000 so far.

We will be working hard throughout 1985 to raise the remainder of the funds needed for this important project. I feel confident that we can accomplish this goal because our Members have proven themselves capable of meeting challenges in the past. I know, with your help, we will succeed.

Peter H. Raven

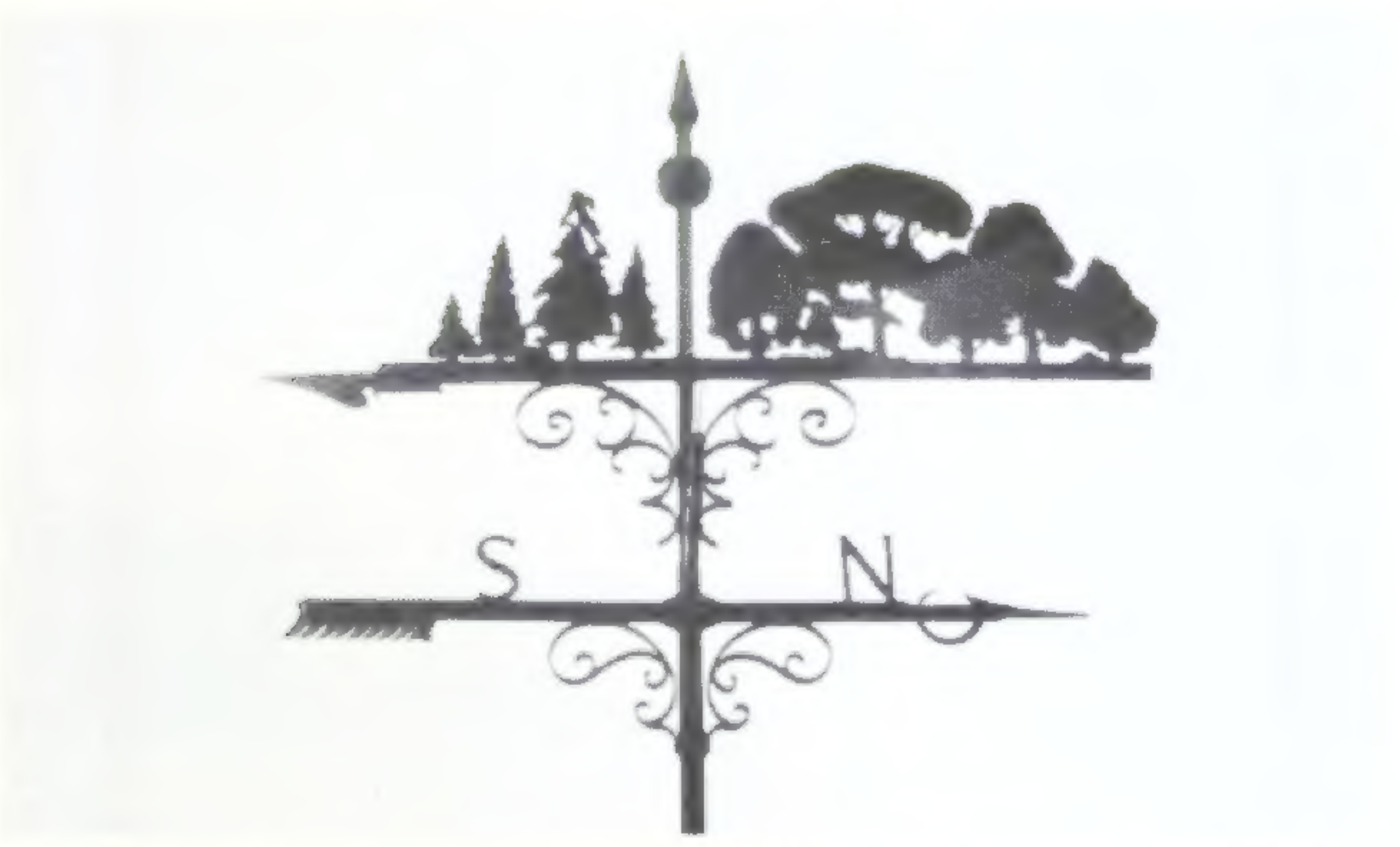
Gardenview Restaurant Under New Management

The Gardenview Restaurant in the Ridgway Center has recently come under new management. Greentree Gourmet, Inc. of St. Louis will provide food service in the restaurant and catering at the Garden. The principals of Greentree Gourmet, Inc. are Judith L. Bellows and Cecily A. Hoffius, who also operate Ces and Judy's restaurant in the Central West End.

The new operators of the food service are in the process of making major physical improvements to the kitchen, including installation of dishwashing equipment to allow the use of china and glassware. They also will expand the menu to accommodate a wider variety of appetites and budgets. A return of the popular Sunday Brunch is also expected soon.

Next time you are at the Garden, be sure to stop by the new Gardenview Restaurant and sample some of their excellent dishes.

Winter At Shaw Arboretum



The weathervane atop the Visitor Center at Shaw Arboretum is one of the elegant details of this building which was designed by landscape architect John Nayes and completed in 1936. The weathervane's silhouette of conifers and deciduous trees symbolize the 55 acre Pinetum and the extensive natural forests of the Arboretum.

Do your muscles need toning up for the new year? A winter hike at Shaw Arboretum will do that and invigorate your spirit as well. The Arboretum has 18 miles of trails and roads which are well maintained for hiking through the endless variety of plant life contained in its 2,400 acres.

Winter lets the trees show us their structure and intricate details. And if you like puzzles, you will enjoy identifying trees and shrubs using the clues given by twigs, buds, and fruit. William Trelease's *Winter Botany* and William Harlow's *Fruit Key* and *Twig Key to Trees and Shrubs* are excellent aids in identification. Both books are available at the Garden Gate Shop.

For those wanting a more vigorous form of exercise, jogging and cross-country skiing are popular at the Arboretum. Aficionados of cross-country skiing have found the gentle slopes of the meadows and roads are ideal for their sport.

The Arboretum is open every day of the year from 7 a.m. to one-half hour past sunset. Members are admitted free but are requested to stop at the Visitor Center and show their membership card. This provides the Arboretum staff with accurate visitation records and the opportunity to provide you with up-to-date information about the Arboretum.

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Danforth Speaks of Garden's Role In Ending Famine

Editor's Note: At the annual Henry Shaw Dinner on November 26, honoring Henry Shaw Associate Members for their generous and enthusiastic support of the Garden, guests were treated to an emotional address by U.S. Senator John C. Danforth, R-Mo, urging the Missouri Botanical Garden to take a leading role in trying to solve the world's hunger problems through expansion of our botanical research efforts in Africa. Senator Danforth's remarks, reprinted below, ably illustrate how the Missouri Botanical Garden and its Members can contribute to the long term resolution of the famine which has struck the African continent.

Globe-Democrat photo/John Dengler

The recipient of the 1984 Henry Shaw Medal, Robert Brookings Smith (right), being congratulated by Board President John Biggs (left) and keynote speaker Senator John C. Danforth. Mr. Smith's many contributions to the Garden include serving as a Trustee from 1952 to 1963 and as President from 1958 to 1962. He lead the way for the building of the Climatron and the All-America Rose Test Garden. Mr. Smith has also been a generous supporter of the Garden's tropical research program.

For 125 years, Shaw's Garden has been the pride of St. Louis. Every schoolchild learns about it. Every citizen of this community can enjoy it. But we in St. Louis tend to forget that Shaw's Garden is more than a local treasure. It is a great research center of botanical science. Its reputation is nation wide. And tonight my job is not just to praise Shaw's Garden for what it has meant to St. Louis, my job is to challenge it to attain what it can be to the world.

The issue is as current and as big as this week's *Newsweek* cover story. Africa is starving. It is a plant problem. They cannot grow enough food to feed their people. So the result is what you saw on the cover of *Newsweek*. And what you saw on the NBC Evening News, and what I saw in the boondocks of Mozambique: mothers holding babies who will not live another day.

The crisis of a current, full blown famine is, of course, beyond the reach of Shaw's Garden or any other research institution. In more than 20 African countries 150 million lives are at immediate risk, and help for them must come immediately or not at all.

In meeting this crisis, your Government is doing its part. Last year it sent $172 million of emergency food aid to Africa. In two months since the new fiscal year began on October 1, the President has obligated $199 million for Africa, $100 million for Ethiopia alone. But, much more will have to be done. When Congress reconvenes, it will be faced with an unprecedented need for emergency supplemental appropriations.

There is no doubt in my mind that we will meet that need. We will do so not just because America has vast agricultural bounty, we will do so because feeding the hungry touches the basic values of our people. Recent news accounts and television broadcasts have reached deep into our national character, dozens of private voluntary organizations have been overwhelmed by the outpouring of support from the American people.

Cynics might say that in feeding the world, Americans are really helping themselves, and the cynics have a point. Every $1 million in wheat that the United States exports under food for peace generates $5.42 million in gross output, provides employment for 143 workers, and increases personal income by $1.54 million. It does serve America's self-interest to feed the world. But self-interest is not the whole basis of our concern.

Self-interest does not explain why Missouri school children hold bake sales and car washes to raise money for the starving in Cambodia and Ethiopia. Self-interest does not explain Peace Corps volunteers who live in isolated African huts on a diet of millet, and who learn to speak Wolluf and Puel. Self-interest does not explain millions of Americans across the country who send money in response to T.V. pictures of the dying in Ethiopia. Americans are giving their money, their time and even their lives because that is what our country is all about. We believe in the worth of human beings, wherever they are, whatever their language, whatever they look like. Americans are the most principled people in the world. Tell them of a famine in Africa. There is no question of their response.

Before we become overly self-congratulatory, let's face reality. I want to make a shocking statement. Not only does sub-Saharan Africa face a short term crisis, it lacks long-term hope. It has the only increasing population growth rate in the world. It has the only declining per capita income and agricultural growth rate in the world. Its existing population is illiterate. Its productive capacity is nil. Its debt is unmanageable. It has almost no natural resource base. Its climate is miserable, even in good times.

Its governments have so mismanaged agriculture that they have made matters worse. They have ignored their farmers, and they have destroyed production incentives by becoming overly reliant on subsidized food sales from the West. They have experimented with failed communist economic systems. They have encouraged urbanization and industrialization without the resources to make such development work. Civil strife and tribal conflict have created millions of displaced persons. South Africa's racist regime has stuffed 40% of the populace into 10% of the land, and then bragged to the world of what they are doing.

The sad fact of the matter is this: emergency food aid cannot free Africa from the vicious cycle of drought and famine. This cycle of doom will not be interrupted until its underlying causes are corrected.

Africa lacks long-term hope. And yet, there is an occasional glimmer. In Mozambique the government has recognized the limits of large collective farms and has provided plots on which individuals can raise crops. Our Agency for International Development has worked with African governments not only to provide a better agricultural in-

The New Caledonian Report

by Gordon McPherson

Over the past five and a half years, as the Missouri Botanical Garden's botanist in New Caledonia, I've been collecting and studying the plants of that unusual island. Because it has been more or less isolated from Australia and the other lands of the Southwest Pacific for most of the history of the flowering plants, it harbors many species that are of great interest. Some are quite primitive in their structure, resembling (we think) the early products of flowering plant evolution, while others represent lineages that have developed there and nowhere else, or that have been restricted to the island by the changing climates of the other areas in which they formerly existed. For instance, one in ten of the world's gymnosperms (the "evergreens" or "conifers" and their allies) is found only in New Caledonia.

Because relatively little is known about most of these plants, many botanists around the world are interested in studying various aspects of their biology. My work there has been primarily to collect the various kinds of specimens which the botanical community needs in order to get a better understanding of New Caledonia's flora. My own studies center on the classification of the Euphorbiaceae there. This is the family which includes the spurges and the economically important species that yield rubber, cassava, and manioc as well as such decorative plants as the poinsettia. Another aspect of our program involved my aid to visiting scientists whose studies necessitated field work in New Caledonia. The cooperation which these visitors received not only furthered their own work, but also must reflect well upon the Missouri Botanical Garden.

To take a very practical point of view, the work in New Caledonia involved bouncing along usually abandoned lumber or mining roads (the island is a major producer of nickel) in the Land Rover until a likely-looking patch of forest or scrub was reached (or until the road became impassable). Then, under most circumstances, the back-packs would go on, the field press would be filled with newspapers, the pruning poles would be slung over the shoulder, and the collecting would begin. Some collecting trips involved one or two day hikes to reach out-of-the-way spots, and the actual method of obtaining the flowering or fruiting pieces would vary according to the equipment available. Once such pieces were at hand, they would be field-pressed and, that evening, would be put between cardboard or aluminum corregates and placed on the field dryer. After an average of 15 hours on the dryer (some specimens would take as much as three days), the dehydrated and flattened specimens would emerge essentially in the state in which they will be permanently stored. Next each specimen, once back from the field, would be identified using whatever appropriate books were available as well as by comparing it to the reference collection housed in the French research station, ORSTOM (Office de Recherche Scientifique et Technique Outre-Mer), in Nouméa, the capital and only major city of New Caledonia. Then would come a temporary storage period in the second of my apartment's two bedrooms, which often also sheltered whichever visiting botanist had assisted at the collecting. Finally, the specimens would be wrapped, boxed, walked through an inspection by the Service Phytosanitaire, and shipped by surface mail to St. Louis. Four to six months later they would reach the Missouri Botanical Garden, and after labels bearing the identification and collection data had been associated with them, they would be distributed to the scientists and institutions especially concerned with the various groups.

A variety of other kinds of specimens were also collected when specifically requested—large leaf samples for chemical analysis, bud material for cytological studies, live stem pieces for phloem studies, wood for anatomical examination, or seeds for propagation of interesting or attractive species, to name the most common sorts.

Many of the latter kinds of specimens are already cited in scientific papers for, as a rule, the researchers who asked for such material used it as soon as they received it. In other cases, the specimens are still under study, and we can expect to see a steady stream of reports based on New Caledonian collections for years to come.

For the next six months or so, I'll be working up my portion of the collection, the Euphorbiaceae. There are manuscripts to complete describing several new species and one new genus, in addition to the large treatment that will contain descriptions of most of the species, their distribution and ecology, and illustrations of their habits, flowers, and fruits.

Similar treatments for other families are being prepared by specialists in Paris, London, Oxford, Leiden, Stockholm, Canberra, Sydney, and Christchurch, as well as in several American centers. In all of these studies our New Caledonian collections will contribute to the clarity of understanding of the taxa involved.

Funding for the project began nearly six years ago with a generous grant from the Harry Freund Memorial Foundation of St. Louis. Once this seed money began to yield results, we were able to obtain further support from the National Geographic Society and the National Science Foundation, as well as from Pioneer Hi-Bred International for two years through their William L. Brown Fellowship. Botanists throughout the world have benefitted from the funding made available to the New Caledonian project, and we remain dependent on such organizations for support to do botanical exploration today before the floras of many other poorly known areas suffer irreparable damage.

Dr. Gentry Attends Symposium in Brazil

Al Gentry, associate curator at the Missouri Botanical Garden, addresses the First International Symposium on the Humid Tropics in Belem, Brazil, as Brazilian officials look on.

Dr. Alwyn Gentry has just returned from Brazil where he was invited to provide the botanical overview for the first Humid Tropics Symposium organized by the Brazilian government and attended by over 300 scientists from Europe, Asia, Africa, and North and South America. Although the emphasis of the conference was on agronomic and agricultural development, the willingness of development planners to consider the kind of biological perspective provided by Dr. Gentry's talk in their programs for Amazonia and the rest of the humid tropics is a new indication of the importance of the kinds of inventory work being conducted by the Garden in Latin America.

Garden Receives N.E.H. Grant

The Missouri Botanical Garden has been awarded an $85,000 challenge grant by the National Endowment for the Humanities (N.E.H.) The grant will be used for remodeling of space for the Garden's research library and rare book collection that includes volumes dating back to the fifteenth century; for the bindery; and for the archives of over 220,000 documents on the history of science. The library is an integral component of the Garden's research program, which is the most active tropical botany research program in the world.

In order for the Garden to take advantage of the grant, the N.E.H. funds must be matched on a three to one basis, with $255,000 in private donations.

The N.E.H. is an independent federal agency that supports research, scholarship, education and general audience programs in the humanities. The Garden was one of the forty-six grant recipients, and one of only two libraries to receive an award, out of 222 applications for funding this year.

Film Planned on Tropical Deforestation

The Missouri Botanical Garden and a consortium of other institutions have joined forces to produce a television series on the causes and consequences of tropical deforestation. According to Dr. Peter H. Raven, "Tropical deforestation is an issue of critical international importance, but it is difficult to interest people in destruction that seems to be so unrelated to their day-to-day lives." Raven said, "The television series will help to raise levels of public awareness about the issue and will help the general public understand how it impacts the entire world."

The project, which will be based at the New York Botanical Garden, has had the assistance of the R. J. Reynolds Industries in funding the initial development.

The consortium of institutions includes the Missouri Botanical Garden, the New York Botanical Garden, Arnold Arboretum of Harvard University, the National Zoo, the Organization for Tropical Studies, and the World Wildlife Fund—U.S.

In Memoriam—Jack Horner

Many Garden Members were saddened by news of the death on November 25, of Jack Horner, a 15 year volunteer in the Answer Service.

Even though his health was failing, Mr. Horner continued to volunteer his time at the Garden. He was also active in the Boy Scouts of America, the Men's Garden Club, the Boxwood Society and the Beekeepers Association.

Reagan Names Raven Chairman of National Museum Services Board

Dr. Peter H. Raven, director of the Missouri Botanical Garden, has been named by President Reagan to serve as chairman of the National Museum Services Board. The Board is the policy-setting agency for the Institute of Museum Services. Raven, who has been a member of the Board since its inception in 1977, will succeed Douglas Dillon as chairman.

The Institute of Museum Services, an independent Federal agency within the Executive Branch, was established by Act of Congress in 1976 to assist museums in maintaining, improving and increasing their services to the public. Since its inception, the Institute has provided grants to support the efforts of museums to preserve the nation's historical, scientific and cultural heritage; to maintain and expand their educational role; and to meet the financial pressures resulting from rising operating costs and increased public demand for museum programs and services. As chairman of the Board, Raven will guide the development and implementation of these policies as well as supervise the Institute's programs. In recent years, Raven has become increasing involved in the policy questions facing museums in this country. Raven recently served on the distinguished national Commission of Museums for a New Century, which published a landmark report on the future of museums in October, 1984. He was also named chairman of the St. Louis Museums' Collaborative.

***Jane Coultas**, manager of Tower Grove House since 1977, retired at year's end. In appreciation of her hard work and leadership the members of the Tower Grove House Auxiliary recently presented Jane with a lovely crystal vase.*

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October 1984

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Winter Photography Challenge Offered

If a new camera was in your holiday stocking, the Winter Photography Contest sponsored by the Garden is a terrific opportunity for all levels of amateur shutter buffs to capture the diversity of the season on film.

All parts of the grounds provide many unique subjects for creative photography. Judging will be based on composition, presentation and creativity with awards given for the best black-and-white and best color print in Junior (18 years and younger) and Senior (over 18 years) divisions. Every entry should be submitted by March 1, 1985 and must be matted on an 11 x 14 inch board regardless of the photograph's size.

A participants' reception with refreshments will be held from 3-5 p.m. on March 10. Winners will be announced and all entries displayed. Winning photographs will be published in the *Bulletin* and distributed to local media for publication.

Entry forms are available at the Ridgway Center ticket counter. There is no fee to enter the contest and Members are encouraged to get an early start to ensure meeting the March 1 deadline.

For more details, please call the public relations office at 577-5125.

The Garden staff will go to great heights to make your visits to the Missouri Botanical Garden enjoyable. Pictured above is Alan Godlewski, chief horticulturist, literally out on a limb stringing lights to get the Ridgway Center in the Holiday mood.

Garden Salutes Black America

During February, which is celebrated as Black History Month, the Garden will provide special programming, arts and music that focuses on the accomplishments of Black Americans. The highlights of the two-day celebration February 9 and 10 will be a presentation by noted author Nikki Giovanni.

Giovanni is a writer, poet, recording artist, journalist and lecturer. She was described recently as "the voice of a brilliant friend who's curious about everything you think of and who loves you like a sister but whom you don't see very often and who doesn't mind telling you the whole truth in a warm way."

Giovanni will speak Sunday, February 10 at 8 p.m. in the Shoenberg Auditorium of the Ridgway Center. Tickets for her appearance are $2 for Members and $3 for non-members, and will be on sale at the Ticket Counter in the Ridgway Center beginning Monday, January 27.

At left: Dr. George Engelmann (alias Dr. Marshall Crosby) paid a visit to the Garden on October 19, as part of the 31st Annual Systematics Symposium. The symposium commemorated Dr. Engelmann's contributions to American botany in the mid-nineteenth century. Dr. Crosby, director of the Garden's research division, described Engelmann's influence on the Missouri Botanical Garden as a friend and advisor to Henry Shaw and his importance to botany derived from living in St. Louis during a period of government sponsored exploration and expansion of the West.

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Missouri Botanical Garden

BULLETIN

VOLUME LXXIII, NUMBER 2 MARCH 1985

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The MISSOURI BOTANICAL GARDEN BULLETIN is published seven times a year, in January, March, May, July, September and November by the Missouri Botanical Garden, 4344 Shaw Boulevard, St. Louis, Mo. 63110. Second Class postage paid at St. Louis, Mo. $12.00 per year. $15 foreign.

The **Missouri Botanical Garden Bulletin** is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $35 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden shops and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call 577-5100.

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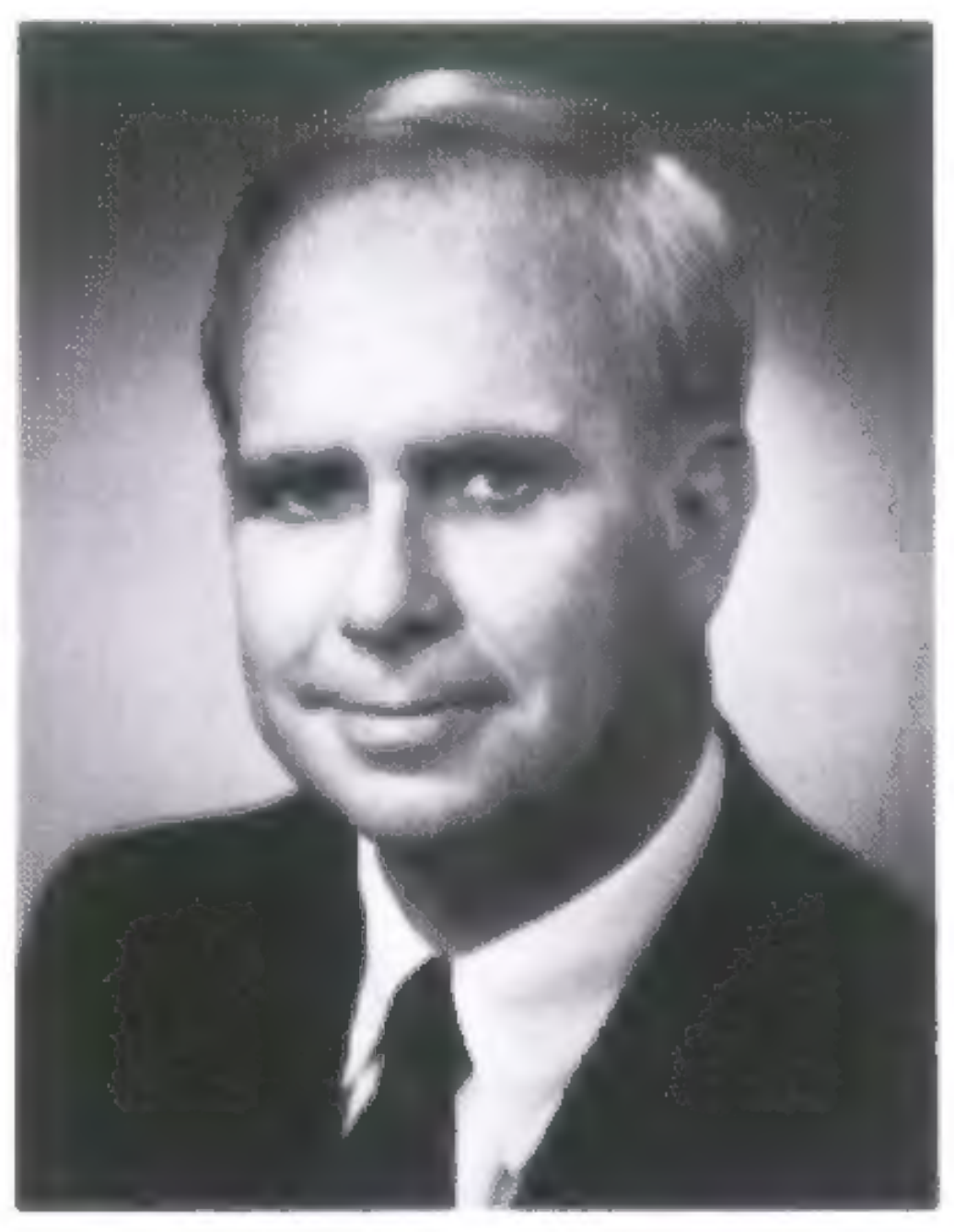
Comment

"Green Inheritance"



In the next few months, the World Wildlife Fund's book *Green Inheritance,* written by Anthony Huxley, will become available in the United States. *Green Inheritance* is not just an excellent volume on botany for the non-botanist—it is also a magnificently illustrated book which invites the reader to explore our green world through sheer enjoyment of the book's color photographs and drawings.

The central theme of *Green Inheritance* is this: more than most of us are aware, we owe our very existence to plants, as they provide food, energy, medicines, a myriad of other consumable products and, perhaps most importantly, the oxygen in the air we breathe. Two-thirds of the estimated quarter-million species of plants in the world grow in the humid tropics. Yet, each year, increasing numbers of these "factories of life" disappear to agricultural and urban development, poor land management practices and the use of killing poisons. Thousands of plant species are destroyed before they are discovered—plants that, when more is known about them, could be used to end famine, cure disease, or prove useful in some other way. *Green Inheritance* neatly presents this message as it educates us about the plant kingdom and enthralls us with that kingdom's beauty.

The book's focus is closely tied to the research work being done at the Missouri Botanical Garden. As you who read the *Bulletin* regularly know, the Garden has the world's most active botanical research program in the discovery and classification of tropical plant species. This program has undergone substantial growth since the mid-1970s. The space in our research facility, the John S. Lehmann Building, is being rearranged to provide more usable space for the program; particularly crucial is our need to redesign and enhance the library's quarters to better accommodate our growing collection and preserve the hundreds of years' worth of botanical books, journals, manuscripts and other resources which are used quite heavily in our work.

In April, all Garden Members will receive a letter asking them to contribute to a special fundraising campaign to renovate the Lehmann Building library. The National Endowment for the Humanities has awarded the Garden an $85,000 challenge grant for the library's renovation, which must be matched on a three-to-one basis, i.e., we must raise $3 from private sources for every $1 we receive from NEH. We will give a free copy of *Green Inheritance* to each Member who contributes $100 or more to this special appeal, as our way of saying "thank you" for your generous support. I ask your help in this most important campaign.

Peter H. Raven

TO OUR READERS

As you have, no doubt, noticed, the *Bulletin* has taken on a new look with this issue. It is our sincere hope that you will find the new *Missouri Botanical Garden Bulletin* more attractive, easier to read and, most of all, informative. In future issues we will be devoting more space to gardening tips, program offerings at the Garden, and insights into our research program. In order to make room for expanded coverage of topics of interest to all Members we will no longer list the names of Henry Shaw Associates and Director's Associates in the *Bulletin*. These Members will be formally recognized for their generous support in the upcoming Annual Report.

Please let us know what you think of your "new" *Bulletin*. Tell us what you like, what you don't like and, most importantly, what you want in the way of news and information from the Missouri Botanical Garden. Send your comments and suggestions to Lee Fox, Editor, Missouri Botanical Garden Bulletin, P.O. Box 299, St. Louis, MO 63166.

60 Years Old & Going Strong

SHAW ARBORETUM CELEBRATES ITS ANNIVERSARY

Sixty years ago, on March 2, 1925, the very first parcel of land was purchased to establish Shaw Arboretum. It was originally conceived as a refuge for the Garden's plant collections that were being ravaged by the polluted air in the city. The air pollution has diminished. The collections have been moved back to the Garden. But today, the Arboretum is still a refuge. It is a refuge for people seeking a quiet place to enjoy the natural world.

Visitors come in all seasons for a wide range of activities and reasons. They come to study plant and animal life and the intricate workings of ecosystems, and to hike and enjoy the beauty of nature.

From that first parcel of land, the Arboretum has grown into 2,400 acres with eleven miles of hiking trails through woods, meadows and glades. For three miles, the Meramec River flows through the Arboretum, creating steep hills and beautiful bluffs. It is home to the Wildflower Reservation begun in the 1940's by Louis Brenner and Edgar Anderson. The Wildflower Reservation is a showplace for spring and summer wildflowers native to the Ozarks. The Arboretum is also the site of a new project, the Experimental Prairie. The Prairie attracts many visitors, especially in spring and summer when the tall grasses and wildflowers provide a colorful display.

Education plays a major role in the overall purpose of the Arboretum. The natural diversity of the area, with its forests, river frontage, ponds, a perennial stream and planned management areas (such as the tallgrass prairie, meadows and Pinetum), combine to provide an excellent site for the study of ecology. The primary focus of the Arboretum's educational effort is to help people understand the processes that govern life on Earth and the role man plays in that process.

Each year several thousand school children, ranging from Kindergarten through high school, visit the Arboretum to study ecological concepts. Classes and workshops are also offered for adults year-round on a variety of subjects. Among the classes and walks to be offered this spring are prairie restoration, wildflower identification, nature photography, ornithology and night hikes. (See the calendar of events in this issue for more information.)

The staff at the Arboretum is devoted to the preservation of the natural world and is eager to share their knowledge and understanding with visitors. Share in the Arboretum's anniversary year by visiting the Arboretum and joining in their classes. It will be a unique experience.

—Bill Davit
Arboretum Naturalist

ARBORETUM ROAD OPENS

The Arboretum has established a new policy that will enable more people to enjoy nature. Beginning April 14 through June 16, the Arboretum Trail House Loop Road will be open to vehicles from 8 a.m. to 4 p.m. on Wednesdays only, for those who find walking difficult. For safety reasons, visitors are asked to stop and register at the Visitor Center. For more information, please call the Arboretum at 577-5138 or 742-3512.

Love Letters to the Arboretum

Editor's Note: The following are excerpts from letters to the Arboretum on the occasion of its sixtieth anniversary. They are testimony to the pleasure, peace and devotion the Arboretum inspires in visitors.

"The Arboretum is a sanctuary for plants, animals and mankind. It is a sea of peace and tranquility less than an hour from the frantic city life of St. Louis. Even on the most crowded days, there is a sense of isolation.

"The Arboretum has charms in the summer as the glades come alive with color and the Meramec River refreshes my tired feet. By autumn the grasses of the prairie dwarf me, and I try to imagine the pioneers traveling through miles and miles of engulfing seas of grasses. Winter has its lovely ice formations along the rock faces, and of course, the wonderful trails for cross country skiing.

"Too bad the Arboretum was not my own backyard. But I will return again and again to view her splendor."

—Toni Armstrong

"I have long admired the planted beds of jonquil and narcissus that make such a spectacular display in the spring, and I knew the common names of some of the wildflowers that I saw along the trails and in the glades, but the full extent of my botanical ignorance was not brought home until the spring and fall wildflower walks were instituted. I managed to assimilate a smattering of botanical lore and could hardly do less with such interesting and helpful instructors.

"A suggestion must be made to all flower lovers. There is an old deer trail that follows a steep, southward plunging ridge from the Overlook at the end of Ledge Ridge Trail. Near the end of this trail on the right, a large colony of Celandine Poppies reaches full bloom in early May. These golden yellow plants, interspersed with Dutchman's Breeches, present a truly spectacular sight, and it is estimated that they number between 700 and 1000."

—Ed Cahill

"We like everything that we see and experience there (the Arboretum). We have been walking the trails, the trace and the roads for several years, and we always see something we have never seen before each time we visit this wonderful place.

". . . We have listed 115 different species of birds that we have seen and identified there, not to mention the ones we were unable to identify.

". . . We never tire of seeing the deer on our walks. During the spring and summer we have seen several pairs of twin fawns as well as single ones.

". . . On a recent walk not far from Wolf Run Lake, we encountered a coyote that emerged from the forest.

". . . One lovely day last fall, we were privileged to watch a mink bathing and sunning and preening itself near a bridge over Brush Creek.

". . . As we moved on, we came upon several wild turkeys in the road. They rounded a curve and when we got there they had melted into the trees and thickets."

—Maxine and Harry Page

"The Arboretum became a sanctuary to me soon after it was established. After my first visit there, I became magnetized. My YMCA nature study group came often in a Model T, and began to learn how to see, hear and feel nature.

"Now in my retirement years, I have a Geographic Fitness Center where I can jog, hike and ski over 1200 miles each year, in one of the most beautiful areas of Missouri."

—Rus Goddard

"I was recently asked why I come to the Arboretum as often as I do, which started me thinking. Why, when I live only a few blocks from Forest Park, do I drive to the Arboretum several times a week to wander the trails?

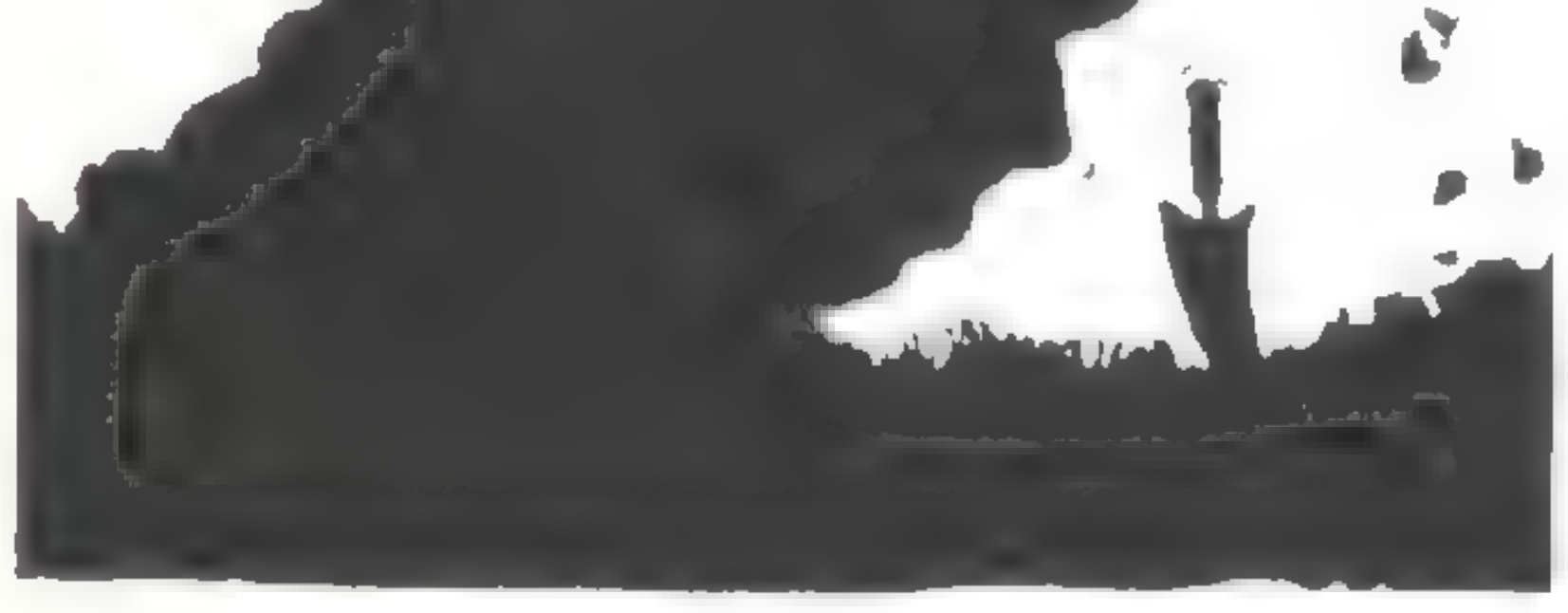
"I love the peace and quiet derived from an early morning hike with only the birds for company. Or sitting quietly in the sun at the Trail House with a book and a thermos of coffee. If you are lucky, the turkeys will come strutting out of the woods. I love sitting by the trail listening to the stream bubbling over the rocks.

"To me, the Arboretum means many things. It is a combination of the various seasons. I draw from it the simple things in life that bring meaning to the outdoors and all its wonders."

—Virginia Day

Gardening In St. Louis

GEARING UP FOR SPRING



MULCHING

Caution is the watchword for those anxious gardeners who are ready to get going in the garden. There is plenty of work to be done, but don't be too eager to prune or remove mulches. Wait until late April for signs of growth before removing any plants from your garden. Some plants will send up new growth if you are patient and need only to have dead wood removed at that time.

As for mulches, wait until all danger of frost has disappeared before you expose your plants. Remove the mulches gradually, especially from your roses. Now is also the time to add more mulch to azaleas, rhododendrons and forsythia. These plants benefit from a constant mulch which protects their roots and keeps weeding to a minimum.

BULBS

Since your early bulbs will be peeking through soon, now is also the time to note where you may want to add more or new varieties next fall. Remember to pinch off the flowers once they have bloomed but leave the foliage intact to help produce nutrients for later use.

RAISED BEDS

As the weather warms, it is time for general cleanup. Don't begin working the soil until it is relatively dry or you will end up with little clumps and just have to rework the area. But once your soil is ready to work, it is time to add fertilizer and prepare your beds. You might want to consider the virtues of raised bed gardening now.

Raised beds can be used with or without framing, but you will want to raise your beds about 6 inches. Mix compost with sand and soil and build the beds higher than the surrounding area. The advantages are many. Raised beds drain more quickly; the soil warms faster; and weeding, watering and harvesting is easier. Raised beds also allow you to work your garden earlier and later in the year, with wood chips or straw walkways between the beds.

COLD FRAMES

Coldframes and hot beds need special care now. Ventilation on warm days is crucial. Many annuals can be started, including petunias, verbenas, calendulas, snapdragons and carefree geraniums. You will also want to start cabbage, lettuce, onions, tomatoes and celery. If you have not planted peas outside yet, do it now.

LAWNS

Your lawn and groundcover areas will benefit from some early attention this spring. Lawns should be fertilized moderately and raked carefully. Thin areas should be reworked and seeded. You will also want to get a jump on chickweed, garlic, clover and knotwood by applying a herbicide. But remember, very few herbicides can be used where you have just seeded, so as with all garden chemicals and products: Read those labels carefully! If your groundcover has become leggy or just needs a trim, cut back now. A trim will encourage some new growth. Do remove the cuttings and toss them on the compost pile.

Attend to your trees and shrubs early in the spring. Remove storm damage and add new specimens to your landscape.

PLANTING

Later in April, you can begin in earnest in your flower and vegetable gardens. That is the time to plant beets, broccoli plants, brussels sprouts, carrots, endive, kale, lettuce, mustard, parsley, potatoes and radishes in the garden. These annuals should also be ready for the outside garden: calendula, California poppy, cosmos, forget-me-not, larkspur, nicotiana, pansy, portulaca, snapdragons, sweet peas and violets.

SPRING PLANT SALE

The really wonderful thing about gardening is that no matter how long you have been a gardener, there is always something new to try. The Spring Plant Sale at the Garden Gate Shop will offer many new things for you to try in your garden. Both the shop and the Orthwein Floral Hall will be stocked with flowers, vegetables, bulbs, tools and books to get you off to a great start in 1985. Sale days are April 18-21 and Members receive 20% off marked prices.

LOST IN THE JUNGLE

Or, You Can't Get There From Here

by Greg de Nevers

The following is a record of a recent trip to Cerro Brewster and the Chagres River watershed in central Panama. It took place from October 15, to October 21, 1984. The trip was led by Brian Mouseal, technical coordinator for the Kuna Planning Project (PEMASKY). Other participants were Pedro Rojas, Panama conservation commission (RENARE) forest ranger and guide; Enrique Arias, PEMASKY cartographer and guide; Rutilio Paredes, Valerio Nenez, and Arnoldo de Leon who are on the PEMASKY planning team; Emilio Jimenez, PEMASKY forest ranger; Heraclio Herrera, my botanical assistant, a Kuna Indian with a scholarship from the Exxon Corporation to work with me, and myself.

The trip was loosely planned at the initiative of Brian Mouseal. The Kunas needed to map the area around Cerro Brewster, altitude 900 m, as they are cutting a trail from Nusagandi, 30 km to the east, to Cerro Brewster along the Continental Divide. The purpose of the trail is to delimit the boundary of the reservation (Comarca) of San Blas, with the intention of stemming the flow of outsiders into the Comarca. They will eventually cut the trail around the divide between the Chagres and the Mandinga Rivers, the Comarca boundary on the east. The Kunas have also contracted to build for RENARE a refugio on Cerro Brewster to use as a patrol cabin, and we were to check the proposed site.

With these things in mind, Brian called for a two or three day trip to the coast from Cerro Brewster. We would walk from around Cerro Jefe to Cerro Brewster, then cut down the ridge between the Rio Mandinga and the Rio Cangandi to the village of Cangandi, where one of the Kunas on the technical team would meet us with a boat. We would motor to the islands, where the Kuna have their villages, spend a day there, and then walk up to Nusagandi.

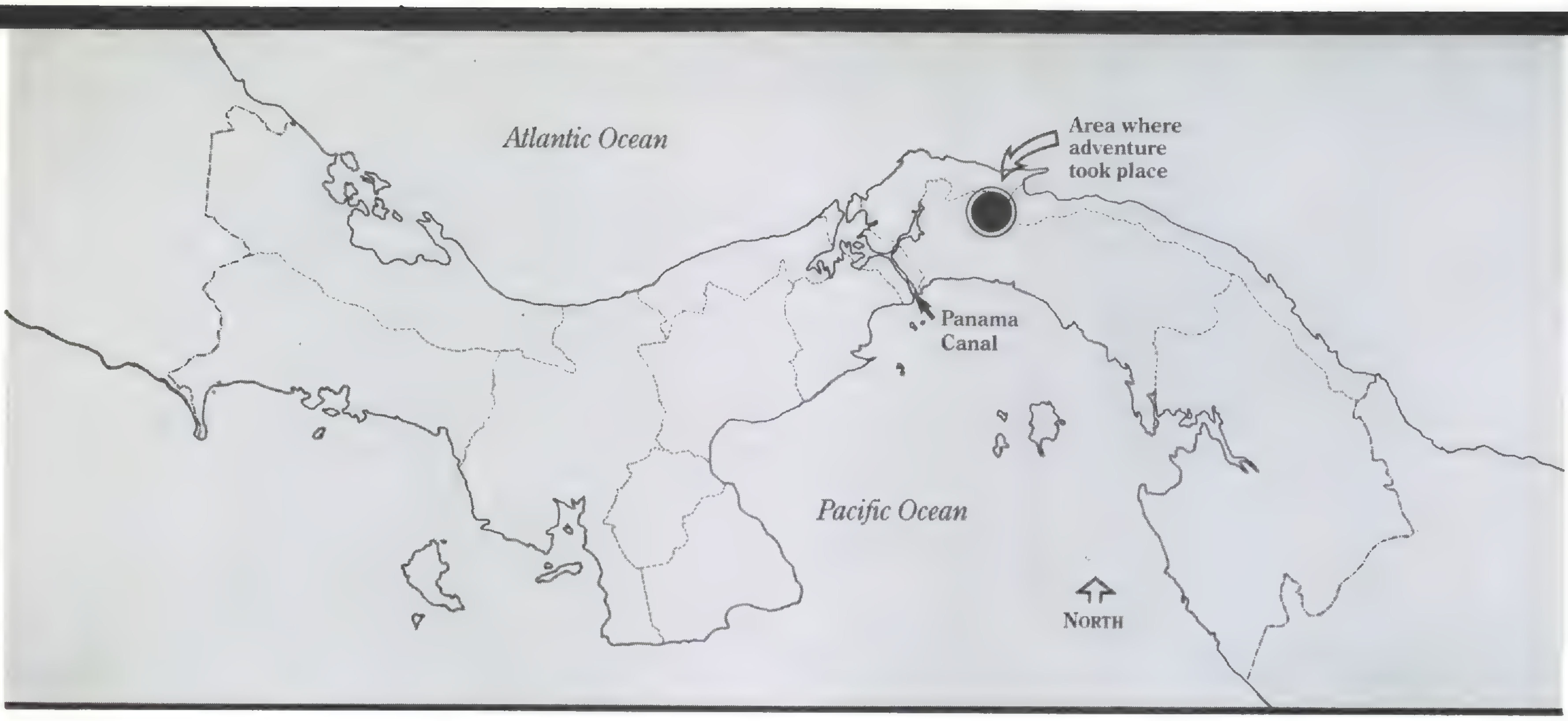
We would only need to carry three days worth of food, as we would eat Kuna food on the coast. I was easily persuaded to come along as it would give me a chance to see a really different, probably much less inhabited and wilder part of the Comarca, and I would finally get to the coast and see a Kuna village. Also it would give me a unique opportunity to pass through some really neat country no botanist had ever been in before and collect plants. Any time you walk that many kilometers of trail you run across amazing things.

Monday, October 15

We were to meet in the Plaza in Panama City. After some confusion in getting started, we finally drove up to the RENARE station at Cerro Azul, on the road to Cerro Jefe. There we met Pedro, our RENARE guide who knew the trail to Cerro Brewster and a little beyond. We dumped all the supplies on the ground and divided them up. I knew it was going to be a long trip. The Kunas had tiny packs which hardly held anything at all. I had filled my pack and Heraclio's with collecting gear—newspaper, cardboard, plastic bags, and gallons of alcohol (for drying plants, not drinking). I wanted the Kunas to at least carry all the food. They couldn't, so I had to leave behind some of my things, such as tennis shoes for wearing at night.

We drove from Cerro Azul to Alto Pacora where we could look out on the country we would be traversing. It looked amazing. Ridge after ridge of forest stretching to the horizon.

We began walking when the road got so bad even our four-wheel drive vehicles couldn't continue. There were giant bamboos along the road, and various little huts and houses. After an hour or so of walking we had to stop to wait for Heraclio and Valerio. They rolled in about fifteen minutes later. Heraclio had never used a backpack before and had a fairly heavy one. For



the duration of the trip I tried to explain to him to put the weight low in the pack and carry it on his hips, and for the duration of the trip he insisted on making it hopelessly topheavy and carrying it with his shoulders. Needless to say he was constantly exhausted, off balance and sore, walked slowly, unconfidently, and last of the group and, all in all, had a very tough trip. Valerio was just very out of shape and had a tough time walking up hills.

After walking about four hours we came to a homestead in the hills and pitched camp for the night (750 m). The campesino wasn't home, but Pedro had been there and knew the man, so we cooked in one of his huts. The huts were dirt floored affairs, with walls made of "ila"—the stilt palm (*Socratea durissima*). The roof was thatched of palm leaves and pitched steeply. There were three huts, the third, with only two walls, was for the horse. All around it was "limpiecito," close cropped grass, the forest held safely at bay. Pedro cooked dinner, and we sat around and talked. The old man who lived there came home about an hour after dark, drunk. He had been drinking chicha at a neighbor's.

Tuesday, October 16

We left at 6:30 this morning. The old man gave us each a banana. We walked along the ridge, with beautiful views into the watershed of the Chagres, some valleys filled with mists, the sun gleaming on the trees in others. On one hilltop was a beautiful homestead with an old lady and her progeny. She had "pejibaye" (*Bactris gasipaes*) growing, citrus, cane and various tree crops. It was the nicest, most livable looking and diverse homestead I've seen. Pejibaye is a spine palm, the fruits of which are eaten like potatoes, with a sweet, starchy flavor.

Today we walked to Cerro Brewster. There were lots of *Symphonia globulifera*, *Conostegia setosa*, and *Clidemia tococoidea*. Pedro called a tree I know, the water latex "rosaceous" thing, "caucho," which means rubber in Spanish. There were lots of "caucho." Near Cerro Brewster, in some shrubs, I saw a neat bird. It had a white breast, black head and tail, olive-green back, and was slightly smaller than a robin.

The trees on Cerro Brewster had all been cut for a heliport. It looked awful. Cerro Brewster is a long ridge with no sharp breaks or transitions as Cerro Jefe has. It must not be high enough to have a radical plant change at the top. The endemic palm from Cerro Jefe is there, *Colpothrinax cookii*. It is common in the woods, and is an emergent. The lower trunk is clothed in long hairs, but when it emerges from the canopy it is bare trunked. I collected a while on Cerro Brewster and then walked on to catch the group, which had pitched camp in a wet gully at 750 m. Between Cerro Brewster and camp I came across a bohio made of *Colpothrinax* leaves. Someone had cut down about fifty of the palms to roof their house. No walls, just a raised floor (2.5m) under a four sided roof. We were at the end of two days of walking and had done about what Brian had planned for the first day.

Wednesday, October 17

We woke early and broke camp. One problem for me on this trip was the pace. We never rested, never paused. I could have used an afternoon off to poke around. We walked on a trail some land speculators had cut on what they thought was the Continental Divide. They had in fact been parceling up Kuna land. When the trail ended we dropped down a ridge which eventually dumped us in a creek at 400 m. This was a bad sign, as we had planned to run the ridge all the way. We started down the creek. Everyone's feet and boots were permanently wet from this point on. The creek was gentle and nice in the morning, flat and slow.

■

Scientific studies still offer adventures for plant collectors who stray from the beaten path, and modern technology and transportation are not always appropriate to field activities in the tropical wilderness.

■

People were struggling now. Lack of food, being lost for three days, and the pure difficulty of it were beginning to weigh on the group.

After lunch we walked on and eventually came to the core of rock which had dammed and flattened the creek in its upper reaches. Walking along the creek through the rocky stretch was another matter entirely. It entailed climbing up and down slippery rocks continuously. We did this all afternoon. It was difficult for me, and especially difficult for some of the Kunas. Climbing slippery rocks with a heavy, awkward pack on, interspersed with frequent creek crossings, it was impossible to keep the group together at the same pace.

Wednesday night we camped on a narrow rock bar on the side of the river. Still we had had no inconvenient rains. It had rained a bit each night, but nothing to get us wet or bother us. Saw red spider monkeys today.

Thursday, October 18

We continued down the river this morning. We stayed on the river for a good long way, moving slowly, climbing up and down the rocks. Finally the cliffs blocked us completely and we were forced to climb to the ridge, led by Enrique. We followed the ridge for a couple of hours that afternoon until it died on us and left us in a quebrada (ravine), which we followed down to a river. Along the quebrada was *Witheringia correana*. This river was flowing in the opposite direction from the river we had left, so I knew it was a different one. We followed it down until it rejoined the one we had left this morning. At the confluence, the water was starting to get deep. We had been walking in the river a lot, as that was the easiest line of travel, and now we were occasionally forced to climb rocks or cliffs—not from fast water, but from deep water.

We went a few more turns down the river and camped on a big sand-gravel bar. Brian had a survival kit, a mist net, fishing line and hooks. He got out the hooks and line and went to it. There were some big fish in the river. I had seen them at least 12 inches long. He threw in the first hook, a fish grabbed it and broke the line. He threw in the the second hook, a fish grabbed it and broke the line. He threw in the third hook, a fish grabbed it and broke the line. Later he told me he should have saved the third hook, or changed to a bigger line. By this night we were definitely saving food, rationing. We made a big fire of driftwood and lay by it and looked at the stars. There was a neat formation of two stars and two planets all in a line. We told stories and felt good.

Friday, October 19

We got up and took off down the river again. People were struggling now. Every crossing was deep or rapid or both. Often Brian and I had to ferry packs and help people across. Lack of food, being lost for three days, and the pure difficulty of it were beginning to weigh on the group. As people got more scared, crossings looked more difficult in their eyes. They went slower and had a harder time. Amazing what fear and fatigue will do.

At one point after a particularly difficult stream crossing I was at my wits end and suggested we abandon the plant collecting materials, but was talked out of it. We walked a ridge a while, dropped to a quebrada, followed the quebrada to a river and camped. Along the quebrada I collected seed of *Lycianthes amatitlanesis*. Hummers flying at my face. Howler monkeys yesterday and today.

This night we ate our last dinner. White rice and lentils begin to taste pretty good. Now we had remaining to us five pounds of white flour, some oil and a bit of lunch food. We made pan bread with the flour for tomorrow's breakfast and dinner. Three pieces per person. It was actually a very happy camp, happily cooking up pan bread, joking and talking. There was some jesting about being "momentarily confused" about being where we were, not being officially lost until we crossed our track unexpectedly. We also talked about throwing out the plants in the calm of a snug camp. Everyone was against it and thought we should carry them until we were out of food.

Saturday, October 20

Started down our river again which quickly rejoined the river we had left yesterday. When we got to that junction, Pedro said, "This looks like the junction of the Rio Esperanza and the Chagres." Prophetic statement. Brian had

> ***The first thing you have to imagine is the rain. The sound of it fills your ears, fills your mind. It runs down your body until you are so covered with water you stop noticing it.***

avidly tried to locate us on the maps from the first, without luck.

We started down the Chargres and the crossings got deeper. We made crossing after crossing, climbing cliffs in between. The crossings got so deep that Brian and I had to ferry all packs across every crossing. We had three chest-deep crossings that day. At the last crossing of the River Chagres I found *Helosis mexicana*, my first encounter with the Balanophoraceae and probably the most exciting plant find of the trip.

Enrique had left us earlier that morning to walk the ridge. While we waited and tried to warm up, Enrique showed up. He said we had to go for the ridge. We agreed, to warm up by walking uphill as much as anything. Enrique's pack was on the other side of the river. He went across with a rope, tied the rope to his pack, and swam across with the rope. Then he rapidly hauled the pack across the river with the rope. It just skidded across the surface. Extremely elegant.

As we started up the hill the aquacero started, the first tropical downpour of the trip. It is difficult to adequately describe the next two hours. The first thing you have to imagine is the rain. This rain is easily as intense as standing in the shower. The sound of it fills your ears, fills your mind. It runs down your face into your eyes and mouth so that you constantly spit and blink. It runs down your body until you are so covered with water you stop noticing it.

Then there is the hill. This was one of the steepest hills I've ever climbed, and not a rock on it. The leaf litter gave way after the first person passed to pure slick red mud. The only thing to do is grab any shrub or treelet you can and pull yourself up. And you have to watch out for spinepalms. Throughout this climb I kept saying to myself, "this is one of the most wild, incredible experiences of my life."

When we made the ridge we began to ascend. We found a bit of a trail and followed it. It got better and then we were at a clearing and there were old plane parts laying around. Heavy, aluminum and steel engine parts. Someone had died there.

We continued up and came to an old rostro, an old cultivation. The trail got better. We continued up along the ridge until dark, then made camp. The nispero trees (*Acras zapota*) even this far out are marked with the scars of rosin collectors! Nispero resin (chicle) is used to make chewing gum. Close to absolute exhaustion tonight upon arriving at camp. There was a bambusoid grass blooming and I didn't even collect it!

That night was my first wet night. My sleeping bag was completely soaked. In all our previous crossings I had managed to keep my pack out of the water, but this night between the deep crossings and the aguacero I was wet. The only part of my body where it really bothered me was my feet. I realized that every night previously when we had made camp I had managed to dry out my feet and let them harden overnight. I slept with my feet out of the bag rather than have them wet.

Sunday, October 21

We got up, broke camp, and walked. I had half a piece of panbread and a handful of granola remaining to me. Some people had more, some less. We were definitely desperate. Arnoldo had the sole fall off one shoe this morning. Then, half an hour out of camp we came across an old bohio with an orange tree full of fruit, a few shrubs of "naranjito" (*Solanum quitoense*), coriander and a wonderful stone water bowl. We knew we were in the vicinity of civilization and a surge of energy went through the group. We descended to the Rio Piedras, found a hunter and discovered ourselves a THREE HOUR WALK FROM ALTO PACORA, from whence we began!

We walked up, ate lunch and began to walk to Cerro Azul. Brian and I got a ride and he took it into town to send a truck. At Cerro Azul I went and bought a case of beer. We cooked up some rice and beef and sat around and got drunk and felt very good indeed. We were all asleep that night around ten when the PEMASKY truck showed up and took us to Panama City. On the ride to Panama I looked up to see two stars still in line. The second planet moved well away on its journey to the horizon once again. □

Sue Taylor

Greg de Nevers is working in Panama in association with the Missouri Botanical Garden and the Smithsonian Tropical Research Institute. He is a graduate student at the University of Missouri-St. Louis.

MARCH-APRIL

HIGHLIGHTS

MARCH 8 *Friday*

Members' Preview of Spring Flower Show

Follow the delicious fragrance of Spring to the Ridgway Center for a special preview of the delightful woodland setting floral display. Monsanto Hall will be the setting for the Botanically Inspired Ceramics Show. Cash bar. 5:30 to 7:30 p.m.

MARCH 21 *Thursday*

Arts Festival At The Garden

In conjunction with the St. Louis International Arts Festival, the Garden is presenting two very special exhibits. "Flowers From the Four Corners of the World" will be on display in Monsanto Hall and a display of Worldwide Distribution of Orchids will be featured in the Climatron. Both exhibits are open through April 7.

APRIL 5 *Friday*

Arbor Day

Celebrate trees at the Missouri Botanical Garden. The first 1,000 visitors will receive a free tree seedling from the Master Gardeners with tips on how to plant and care for trees. A special multi-media exhibit "Trees As a Source of Drugs," by the St. Louis College of Pharmacy, will be on exhibit. 10 a.m. to 4 p.m.

APRIL 6 *Saturday*

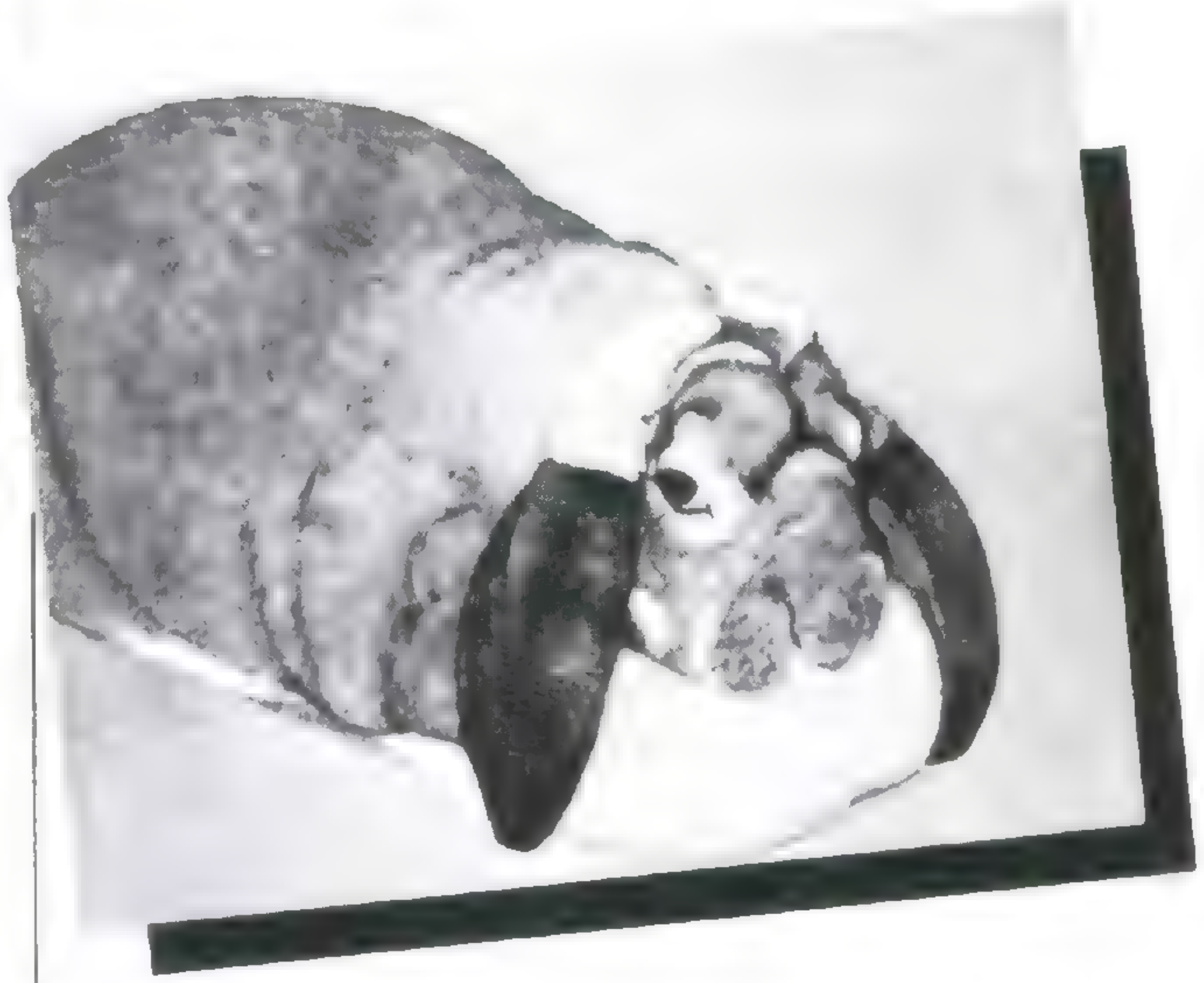
Children's Easter

What a great way to spend a Saturday! Entertainment will be provided by "Show Stoppers" and kids can display their talents in a coloring contest. Ridgway Center. 11 a.m. to 4 p.m.

APRIL 18-21 *Thursday-Sunday*

Spring Plant Sale

Everything you need to make your garden extra special this year will be on sale in the Garden Gate Shop. Orthwein Floral Hall will be full to overflowing with new varieties of plants and your old favorites. Regular Garden hours.



APRIL 19 *Friday*

Members' Preview of Beth Van Hoesen Exhibit

Members will be the first to see the exciting exhibit of lithographs, paintings and drawings by this west coast artist. Van Hoesen is well-known for simplicity and purity of line and her special view of man and nature. Monsanto Hall, 5:30 to 7:30 p.m. Cash bar.

APRIL 27 *Saturday*

Breakfast with the Birds

Come for continental breakfast and a brief talk on birdwatching by naturalist Mary Wiese. Then join her for a walk through the picturesque Garden. Meet at the ticket counter in the Ridgway Center. 8 a.m. to 11 a.m. Members $10, non-members $12. Call 577-5140 for reservations.

1985 SPRING LECTURE SERIES

The 1985 Spring Lecture Series will be held at 1:30 and 8 p.m. in the Shoenberg Auditorium of the Ridgway Center on Tuesdays, April 2, 9, 16, 23 and 30. This educational series will explore the many facets of the family Rosaceae, covering such features as hybridization, pollination, ecological distribution, horticultural and non-cultivated members, diseases and care, floral arranging, the roses in world trade, cooking and drying and many aspects of this family that bring pleasures to people worldwide. This important family also includes apples, pears, strawberries and spirea. See the calendar for specific lectures.

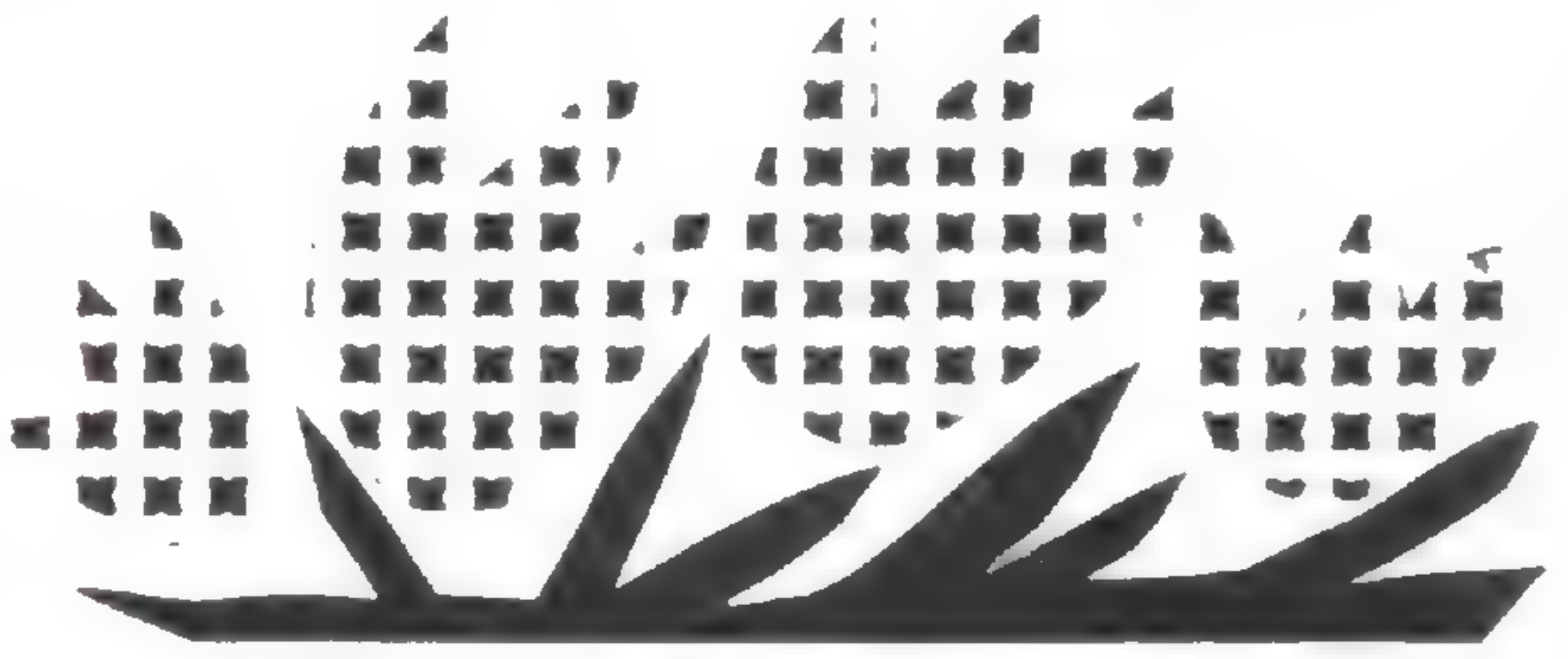
MARCH-APRIL

DAY-BY-DAY

MARCH

2, 3 **Spring Gardening Fair**
Saturday & Sunday, 10 a.m. to 5 p.m., Ridgway Center. Learn the latest techniques, plant varieties, and tips for successful gardening in the St. Louis area. The Ridgway Center will abound with displays, booths and information from local gardening firms. Lectures and workshops on Saturday from 10 a.m. to 3 p.m. for just $5 includes an information packet and a special gardening gift. Displays and booths open both days from 10 a.m. to 5 p.m. with regular garden admission. Co-sponsored by the *St. Louis Post-Dispatch*. Call 577-5125 for information and reservations.

8 **Members' Preview of Spring Flower Show**
Friday, 5:30-7:30 p.m., Ridgway Center. (*See Highlights.*)

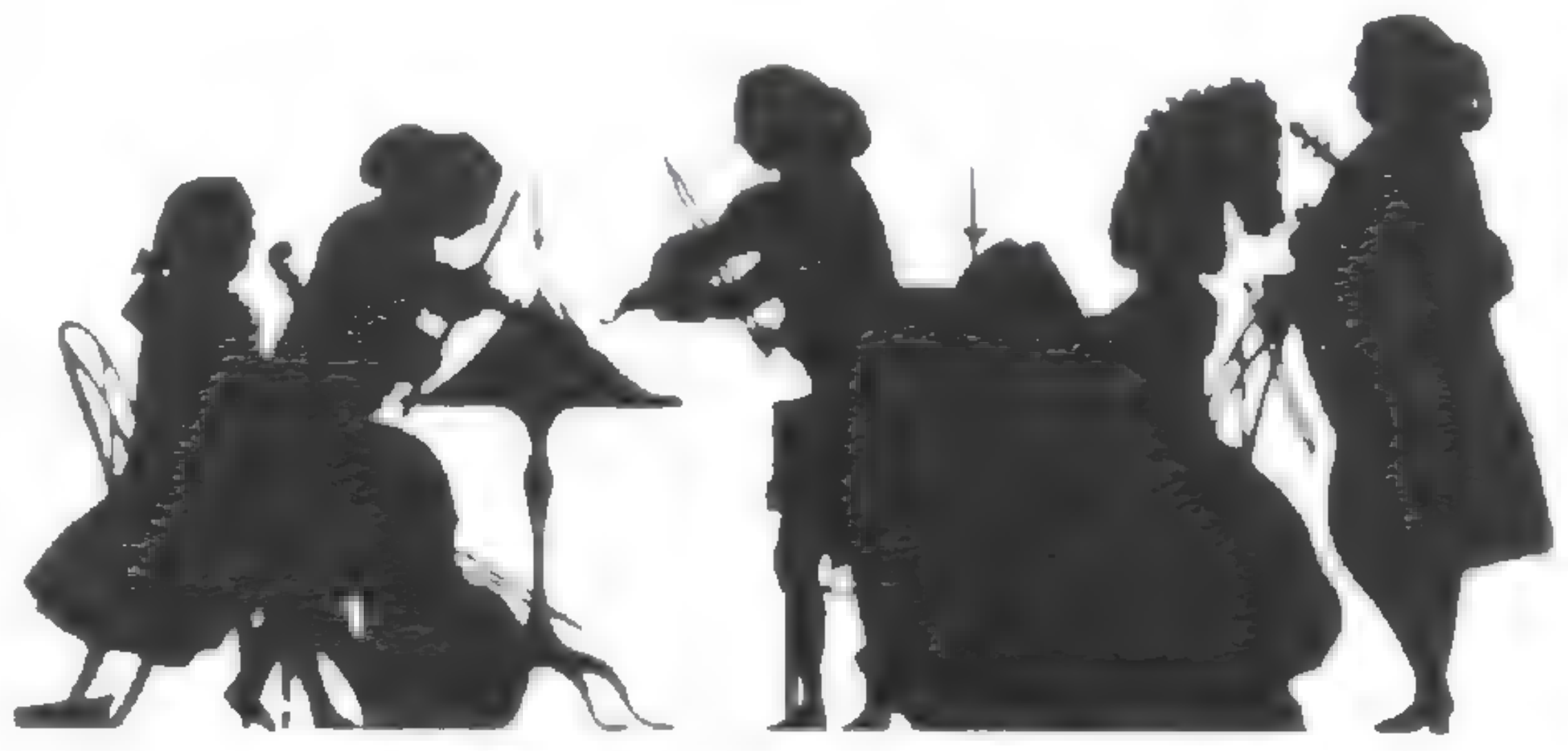


9 **Public opening of Spring Flower Show and Botanically Inspired Ceramic Show**
Saturday, regular Garden hours through April 7. Ridgway Center.

10 **River Styx**
Sunday, 8 p.m., Ridgway Center. National Book Award winner Stanley Elkin will read from his forthcoming novel "The Magical Kingdom." Cara Mia Antonello is the principal second violin for the St. Louis Symphony Orchestra. For tickets and information, call 889-5540.

21 **Arts Festival at the Garden**
Thursday, through April 7, regular Garden hours. (*See Highlights.*)

24 **Chamber Chorus**
Sunday, 3 p.m. Shoenberg Auditorium. Featuring the music of American Composers, 1770-1970. $5 at the door, $3.50 for Garden Members. Call 721-7212 for tickets and information.



APRIL

2 **Spring Lecture**
Tuesday, 1:30 p.m. & 8 p.m., Shoenberg Auditorium. "Rosaceae: a family that delights the eye and palate" is the first in a series of lectures exploring a plant family that brings many pleasures to people world-wide. Dr. Nancy Morin, director of the Botany Department at the Garden will present the lecture. Free and open to the public.

5 **Arbor Day**
Friday, 10 a.m.-4 p.m.
(*See Highlights.*)

6 **Plants of the Bible**
Saturday, 10 a.m. to 4:30 p.m. through May 5. A stroll through the Mediterranean House will show you many of the plants referred to in the Bible.

6 **Children's Easter**
Saturday, 11 a.m.-4 p.m.
Ridgway Center. (*See Highlights.*)

7 **Wilderness Wagon Ride**
Every Sunday in April and May, Arboretum. Leaves the Visitor Center at 12:30, 1:30, 2:30, 3:30 p.m. The Wilderness Wagon will provide narrated tours to the Trail House and back. Round trip charge $1 for adults, 50¢ for children and senior citizens. Half price, one-way tickets available.

9 **Spring Lecture**
Tuesday, 1:30 & 8 p.m. Shoenberg Auditorium. "The Best Loved Varieties of Roses" will be the topic presented by David Vismara, Director of the George Powell Horticulture Center and Arboretum in Kingsville, Missouri. Free and open to the public.

14 **River Styx**
Sunday, 8 p.m., Ridgway Center. Margaret Atwood, Seth and Maryse Carlin. Ms. Atwood is the author of ten books of poetry and seven novels. The Carlins are prizewinning, accomplished recitilists. For information and tickets, call 889-5540.

14 **Wilderness Wagon Ride**
Sunday, 12:30, 1:30, 2:30, 3:30 p.m., Arboretum. See April 7 for details.

16 **Spring Lecture**
Tuesday, 1:30 & 8 p.m., Shoenberg Auditorium. Monica Colombo, Rosarian for the Garden will present "Cultivation, Care and Diseases of Horticultural Varieties of Rosaceae." Free and open to the public.

18-21 **Spring Plant Sale**
Thursday through Sunday, regular Garden hours, Garden Gate Shop.
(*See Highlights.*)

19 **Members' Preview of Beth Van Hoesen Exhibit**
Friday, 5:30-7:30 p.m. Monsanto Hall.
(*See Highlights.*)

20 **Public opening of Beth Van Hoesen Exhibit**
Saturday, regular Garden hours, Monsanto Hall. Flowers, animals and drawings from life on exhibit through June 2.

21 **Wilderness Wagon Ride**
Sunday, 12:30, 1:30, 2:30, 3:30 p.m., Arboretum. See April 7 for details.

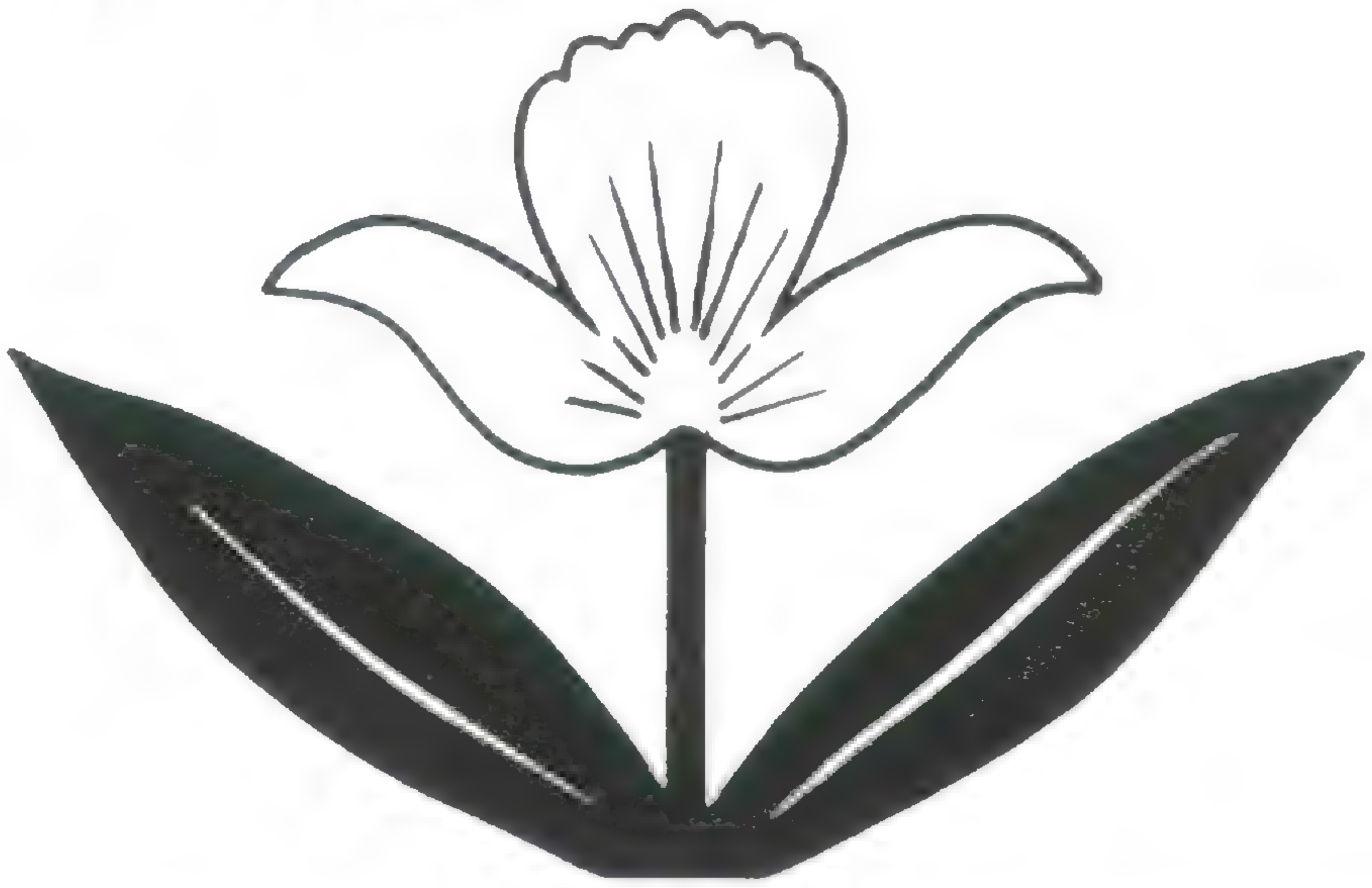
23 **Spring Lecture**
Tuesday, 1:30 & 8 p.m., Shoenberg Auditorium. Barbara Brundage, well-known to Garden Members for her exquisite designs, will present "Roses In Floral Arrangements, Cooking and Drying." Free and open to the public.

27, 28 **African Violet Society Show**
Saturday and Sunday, regular Garden hours, Ridgway Center. See the finest of the Society's plants shown and judged in the Orthwein Floral Hall.

30 **Spring Lecture**
Tuesday, 1:30 & 8 p.m. Shoenberg Auditorium. Betty Nellums of the Webster Groves Nature Society will present "Wild Roses and their relatives in Missouri." Free and open to the public.

SPRING LEARNING OPPORTUNITIES

For a complete description of the following courses and activities, please consult the Spring 1985 Courses and Lectures brochure which was mailed to all Members in late January. Reservations for classes are limited and have been taken since the brochure was mailed. Please call the Education Department at 577-5140 for information on class availability.



COURSES AT THE GARDEN

MARCH

9 (S) Birding Along the Mississippi, 8 a.m.-2 p.m.
11 (M) Nature Photography Workshop, 7-9 p.m.
13 (W) Basics of Floral Design I, 7-9 p.m.
14 (Th) Green & Healthy Lawns I, 7-9 p.m.
16 (S) Family Saturday Morning Series: Summer Flowering Bulbs, 10:30 a.m.-Noon
16 (S) Cloning Concepts, 10:30 a.m.-Noon
18 (M) Nature Photography Workshop II, 7-9 p.m.
19 (Tu) Rose Care: Pruning & Planting, 10:30 a.m.-Noon
20 (W) Basics of Floral Design II 7-9 p.m.
21 (Th) Green & Healthy Lawns II, 7-9 p.m.
23 (S) Nature Photography Workshop III, 9 a.m.-2:30 p.m.
26 (Tu) The World of Annuals, 7-9 p.m.
27 (W) Organic Gardening I, 7-9 p.m.
27 (W) Basics of Floral Design III, 7-9 p.m.

APRIL

1 (M) Nature Photography Workshop IV, 7-9 p.m.
2 (Tu) The Perennial Garden I, 7-9 p.m.
3 (W) Organic Gardening II, 7-9 p.m.
9 (Tu) The Perennial Garden II, 7-9 p.m.
10 (W) Earthenware Pot Making, 10 a.m.-Noon
11 (Th) Vegetable Gardening I, 7-9 p.m.
13 (S) Hawn State Park Photography Hike, 7 a.m.-5 p.m.
13 (S) Family Saturday Morning Series: Arbor Day Celebration, 10:30 a.m.-Noon
13 (S) Perennial Garden III, 7-9 p.m.
15 (M) Fundamentals of Home Gardening I, 7-9 p.m.
17 (W) Herbs: Their Uses & Culture I, 9:30 a.m.-2:30 p.m.
18 (Th) Herbs: Their Uses & Culture I, 9:30 a.m.-2:30 p.m.
20 (S) Family Saturday Morning Series: Family Vegetable Garden I, 10:30 a.m.-Noon
20 (S) The Perennial Garden IV, 10 a.m.-Noon
22 (M) Fundamentals of Home Gardening II, 7-9 p.m.
25 (Th) The Garden in Watercolors I, 9 a.m.-Noon
27 (S) Breakfast With the Birds, 8 a.m.-11 a.m.
27 (S) Intermediate Floral Design II, 10 a.m.-Noon
28 (Su) Interpretive Walk of Cahokia Mounds, 9:30 a.m.-3:30 p.m.
29 (M) Fundamentals of Home Gardening III, 7-9 p.m.

COURSES AT THE ARBORETUM

MARCH

2 (S) Prairie Restoration, 10 a.m.-3 p.m.
6 (W) Woodcock Courtship, 6-7 p.m.
9 (S) Maple Syrup, 9 a.m.-2 p.m.
15 (F) Night Hike, 8-10:30 p.m.

APRIL

2 (Tu) Spring Wildflower Walk, 9:30 a.m.-1:30 p.m.
9 (Tu) Spring Wildflower Walk, 9:30 a.m.-1:30 p.m.
12 (F) Night Hike, 9-10:30 p.m.
16 (Tu) Spring Wildflower Walk, 9:30 a.m.-1:30 p.m.
20 (S) Wildflower Walk with Edgar Denison, 10 a.m.-2 p.m.
23 (Tu) Spring Wildflower Walk, 9:30 a.m.-2:30 p.m.
27 (S) Nature Photography, 9:30 a.m.-2:30 p.m.
28 (Su) Sunday Afternoon Wildflower Walk, 1:30-4:30 p.m.
30 (Tu) Spring Wildflower Walk, 9:30 a.m.-1:30 p.m.

BOARD OF TRUSTEES NEWS

Trustees Elect Officers, New Members

Board President John H. Biggs (left), Garden Director Peter H. Raven, and new Trustee Nora Stern

New Garden Trustee Charles F. Knight

Charles F. Knight and Mrs. Walter G. (Nora) Stern were unanimously elected to serve on the Board of Trustees of the Missouri Botanical Garden at the Board's annual meeting in January. Mr. Knight is Chairman and Chief Executive Officer of Emerson Electric Co., and Mrs. Stern is President of the Executive Board of the Members. Mrs. Stern and Knight will serve one and two year terms respectively.

John H. Biggs was re-elected President of the Board. Robert Kresko was named First Vice President and O. Sage Wightman III was named Second Vice President. William H. T. Bush, Howard D. Schneiderman and O. Sage Wightman III were also re-elected as term trustees.

Mrs. Stern has been actively involved as a Garden patron since 1965. She was first elected to the Executive Board of Members in 1967 and is currently serving her third term as president of that board. Mrs. Stern said, "It has been a genuine pleasure watching the Garden grow from approximately 2,500 members when I first became involved to a broad-based community organization with nearly 16,000 members. I am looking forward to serving on the Board and am honored that I have been elected."

Knight is active in many civic, business and cultural organizations. He serves on the boards of the Arts & Education Council, the Municipal Theater Association of St. Louis, and is Finance Chairman and Executive Board Member of the St. Louis Area Council for the Boy Scouts of America. In addition to many other boards, he serves as the President of Civic Progress. "I am looking forward to working with this Board of Trustees in support of the Garden's important cultural and scientific missions in St. Louis and abroad," Knight said.

New Manager for Tower Grove House

In January, Norma Silber (left) was named the new manager of Tower Grove House. Mrs. Silber's appointment is a continuation of her involvement as a volunteer to Henry Shaw's country home since 1977.

Since 1979, Mrs. Silber has been president of the Tower Grove House Auxiliary and was responsible for the operation of the popular Tea Room and other projects. If you haven't visited the house recently, stop by and say "hello."

Southwestern Bell Pledges $20,000

Southwestern Bell Telephone Company recently pledged $20,000 to aid in the renovation of the John S. Lehmann Building. Pictured above is Dr. Raven (right) showing Norman Baxter, assistant vice-president for public relations at Southwestern Bell, a chart in the herbarium indicating how much of the $2 million needed for the renovation has been pledged to date. Mr. Baxter was at the Garden to present Dr. Raven with a check for the first half of his company's contribution.

Layton Fund Established To Assist Students

Dr. Peter H. Raven, Garden director, announced recently the establishment of the Ruth Cornelius Layton and Emmet J. Layton Fund to assist outstanding graduate students in botany from Washington University. The fund was made possible by a generous gift of $50,000 from Mr. and Mrs. Emmet J. Layton.

The fund will assist students in botanical research when they are away from the campus or from the Missouri Botanical Garden. Dr. Raven said, "The gift will be invaluable and will ensure that students have the opportunity to do critical research in the field." Each year approximately six students from Washington University are afforded an opportunity to work with Garden scientists as part of their education.

Emmet J. Layton and his late wife, Ruth Cornelius Layton, both attended undergraduate and graduate school at Washington University. Emmet Layton was the founder of Layton, Layton & Associates, formerly a prominent landscape architecture firm in St. Louis.

Just For Members:

If you hurry, there may still be time for you to reserve your place for the **Members' trip to the Gardens and Chateaux of France**. Departing May 16 and returning June 1, this distinctive tour will feature the historically rich Ile de France, the very picturesque area of Normandy, the elegant city of Paris, and the glamorous French Riviera. This 17-day trip will be led by Horticulture Department Chairman Alan Godlewski. Call Judy Peil Travel at 726-2577 for information and to place your reservation.

The Membership Services desk will soon have a new look. Sue Oertli's hardworking committee will have a handsome new desk all its own. 1984 was a banner year for this committee, as it added 730 new members to our rolls! While on the subject of facts and figures for '84, the Holiday Gift membership drive deserves mention. The special dated Garden Christmas Tree Ornament helped boost gift memberships in December to 400 from 200 in 1983. Do remember a Garden membership as a lovely gift for any occasion.

Look Forward To:

- The Climatron's 25th Anniversary certainly warrants a celebration. A grand Members' event is in the works for this fall to commemorate the construction of this Garden and St. Louis landmark.
- A reciprocal admission policy is being formulated between the Missouri Botanical Garden and other botanical institutions across the country. More details on this new Members' benefit will be relayed as plans are finalized.
- The Spring Flower Show preview is scheduled for Friday evening, March 8.
- Be sure to check the calendar for upcoming Members' events.

African Botany Group To Meet at Garden

The Association for the Taxonomic Study of the Flora of Tropical Africa (Association pour l'Etude Taxonomique de la Flore d'Afrique Tropicale—commonly abbreviated AETFAT and pronounced "EAT FAT") is dedicated to the study of the plants of Africa and to the promotion of collaboration and communication between botanists interested in these plants. The Association meets every three years, and on June 10-14, 1985 the AETFAT Congress will be held at the Missouri Botanical Garden.

The theme of the AETFAT Congress will be Modern Systematic Studies in African Botany. With the support of grants from the National Science Foundation, speakers from several European and African countries will participate, and several African botanists will also be able to attend the Congress. The Congress is being organized by Dr. Peter Goldblatt, B. A. Krukoff Curator of African Botany, who is the current Secretary of the organization.

The Garden is the designated center in North America for African botany, and has four curators who are now concerned with the study of this interesting flora. The herbarium collection now contains approximately 500,000 specimens of African plants, and the library maintains a full collection of literature on the African flora and allied fields.

Garden Sponsors Rocky Mountain Ecology Week

For the third consecutive summer, the Missouri Botanical Garden is sponsoring a Members' Week at The Nature Place in the Rocky Mountains. The week long program on Rocky Mountain Ecology is designed for people wanting a casual in-depth look at the mountain life zones, the plants, animals and birds that inhabit them, and the history and ecology of the region. The 1985 trip is scheduled for July 7-13, and will be led by David Wilson, Garden environmental education manager.

In 1983 and 1984, Members traveling to The Nature Place ranged in age from 3 to 80. They all had an excellent time exploring high mountain alpine meadows, the Sonoran desert, and the mountain life zones. Dick Coles, director of Tyson Research Center of Washington University, and Erna Eisendrath, author of *Wildflowers of the St. Louis Area*, joined Dave Wilson as the St. Louis staff for the week. In addition, Bud Wobus, geologist from Williams College, provided Members with an in-depth understanding of the mountain geology, and led groups in fossil digging near the Florissant fossil beds.

The thrill of holding a 36 million year old leaf, or a perfectly preserved crane fly has inspired many Garden Members. It can compare only to the opportunity of photographing a rare alpine Columbine, or one of the hundred year old cushion plants growing close against the rocks above 11,500 feet. A Rufous-sided towhee hopping along the path may inspire even the most casual of bird watchers. These are just a few of the pleasures Garden Members enjoy at The Nature Place as part of our Mountain Ecology Week.

For information or registration, call the Education Department at 577-5140.

Japanese Festival Volunteers Needed

In 1984, 115 Special Projects volunteers gave their time to assist the Garden staff during the Japanese Festival. They were stationed on Teahouse Island giving information and directions to visitors. They also distributed tickets for performances in the Shoenberg Auditorium and staffed festival information phone banks. This was in addition to our regular volunteers who worked in the shops, the Climatron, and gave tours of the Garden and Tower Grove House.

We anticipate an even larger number of visitors this year and have a greater need for volunteers. The festival runs June 15-23, and we need help weekdays and weekends, beginning June 10. Orientation and training will be provided. If you would like to be a part of this popular event, or if you would like more information, please contact Jeanne McGilligan at 577-5187.

GARDEN GATE SHOP

What's New

The buyers for the Garden Gate Shop have just returned from buying trips to Dallas and Florida, so the shop is full of the latest, the most interesting and the most appropriate gifts for any occasion. The Shop's spring selections include gifts and plants in a complete range of prices for special people on your list. For Easter, weddings, graduation, Mother's Day, Father's Day, birthdays, showers, and other important days, remember your special friends with a gift from the Garden Gate Shop.

Just When You Need It Most:

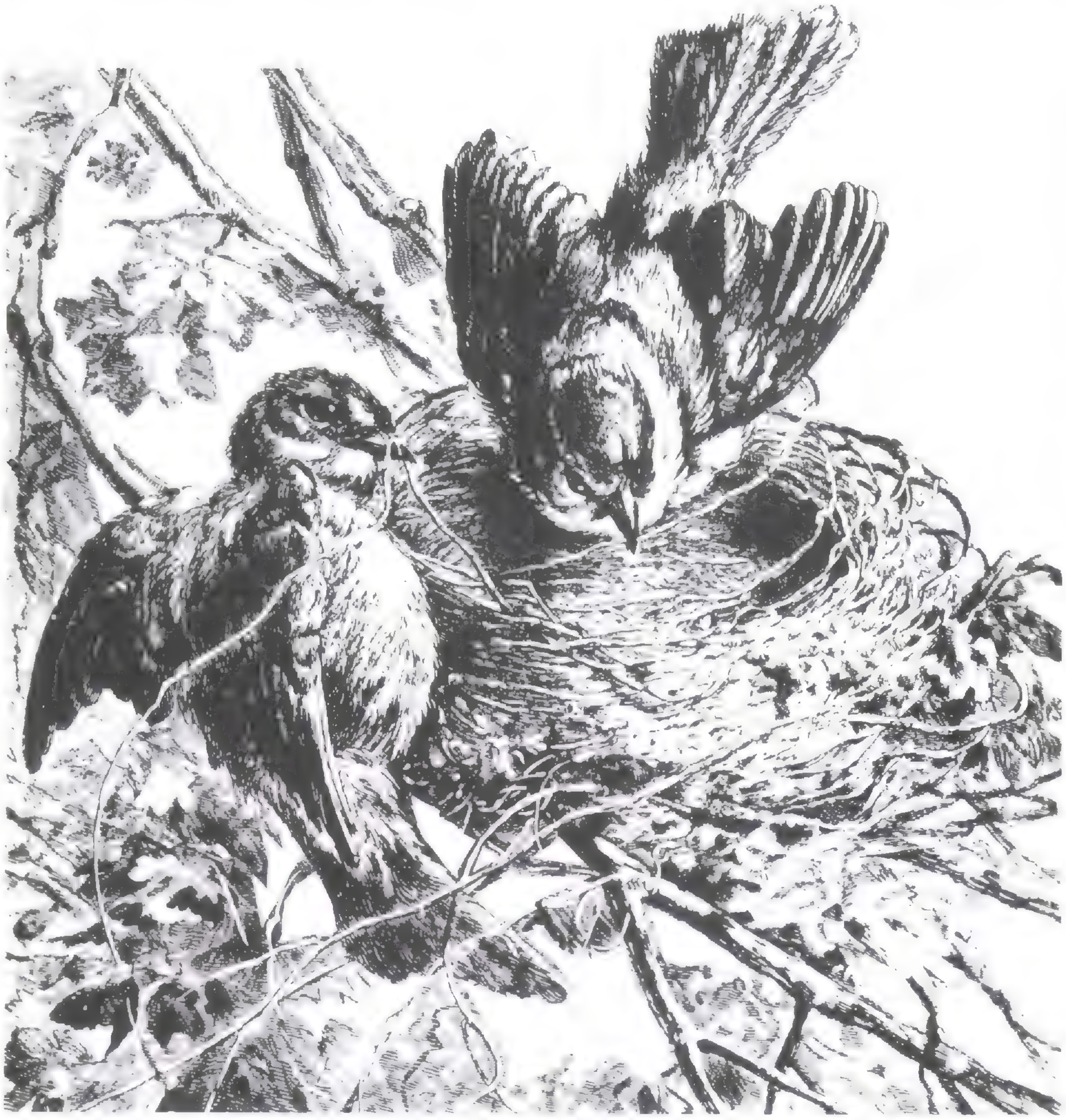
The Spring Plant Sale

Hooray! Its finally spring and the avid gardeners are back in the garden. Now is the time to plant that garden for rewards of flowers, fragrance and food in the weeks to come. It's time to replace the plants that did not make it through the winter. It's time to plan ahead for summer color, and to decide what new varieties you will try in your garden this year. And just when you need it most, the Garden Gate Shop is having its Spring Plant Sale.

Members, of course, get first chance at the sale with a *Members Only Preview on April 18 and 19.* Both preview days, the shop will be open an extra hour as well for your convenience, 9 a.m. to 6 p.m. The sale opens to the public on April 20 and 21 from 9 a.m. to 5 p.m. But Members get a 20% discount for all four days.

Both the Shop and the Orthwein Floral Hall will be full to brimming over with items. The sale will feature bedding plants (both flowers and vegetables), summer blooming bulbs, roses, perennials and flowering shrubs, and garden related items. A complete list of the herbs and perennials is available in the Garden Gate Shop. Make some plans for your garden now, because you won't want to miss the values and variety at the Spring Plant Sale.

For Younger Members *Spring Is For the Birds—and You!*



Have you ever noticed how many more birds you see and hear during the spring months? Spring is nesting season for birds, who must find a suitable place to lay their eggs and raise their young.

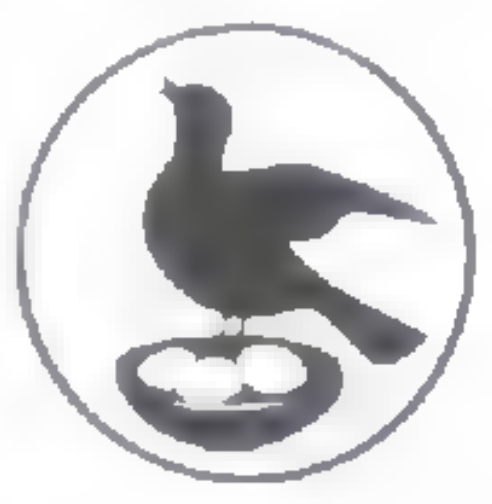
Each type of bird builds its nest in its own special way. Some birds build in branches of trees or bushes. Others build their nests on the ground or in a hole in a tree. Still others build no nest at all, but lay eggs in the nests of other birds instead!

Birds make their nests in different ways. They must use their beaks and feet to build and shape the nest. Building materials consist of grasses, twigs, mud, and soft materials such as bits of string, spider web silk, or even the bird's own feathers. These materials are woven together and shaped by the bird's body. Sometimes the nest is lined with a layer of mud to make it stronger.

You can observe the nesting process if you watch for the comings and goings of birds in your own neighborhood. A bird which seems to fly back and forth to the same location may be building a nest or bringing food to the hatchlings. Watch to see where the bird goes. Is it carrying anything in its beak? How often does the bird go back and forth to the nest? Can you see eggs inside of the nest? Do not try to touch the nest or remove it.

Each type of bird lays eggs that differ in color, number, and size. Hatching may take place in several days, as in the case of the sparrow. But ostrich eggs do not hatch for six weeks!

Watch for nesting activities in your neighborhood this spring. And when you visit the Missouri Botanical Garden, look for this symbol



to locate good areas for watching birds in the Garden.

PROJECT:

Helping the Birds Build a House

During the nesting season, you can encourage birds to build nests in your yard by hanging nesting materials in the branches of a nearby tree or shrub.

You will need: pieces of string or colored yarn not more than two inches in length; straw or dry grass; cotton; an empty mesh onion bag, or a piece of plastic hardware cloth.

What to do: Pull each piece of string or yarn through one or two holes of the onion bag or hardware cloth. Weave each piece of straw or dry grass through at least two holes. Stuff bits of cotton into several more holes, or simply fill part of the onion bag with cotton. Tie the filled onion bag or hardware cloth to a branch of a nearby tree or shrub. Do birds visit the bag? Do they remove anything from it? What materials do they seem to remove the most?

Some people provide birdhouses to attract birds to nest in their yards. Do any of your friends or neighbors do this? Tell them about how you help the birds during nesting time. And, the next time you are at Shaw's Garden, look for the purple martin "apartment" houses located near the north entrance to the Japanese Garden.

DID YOU KNOW . . .

. . . That birds would be too heavy to fly if they did not lay their eggs, but carried them instead?

. . . That some birds' eggs are colored or spotted to match their surroundings? This helps protect the eggs.

. . . That baby birds have a special "egg tooth" at the end of their beaks? They use it to break through the shell when they are ready to hatch.

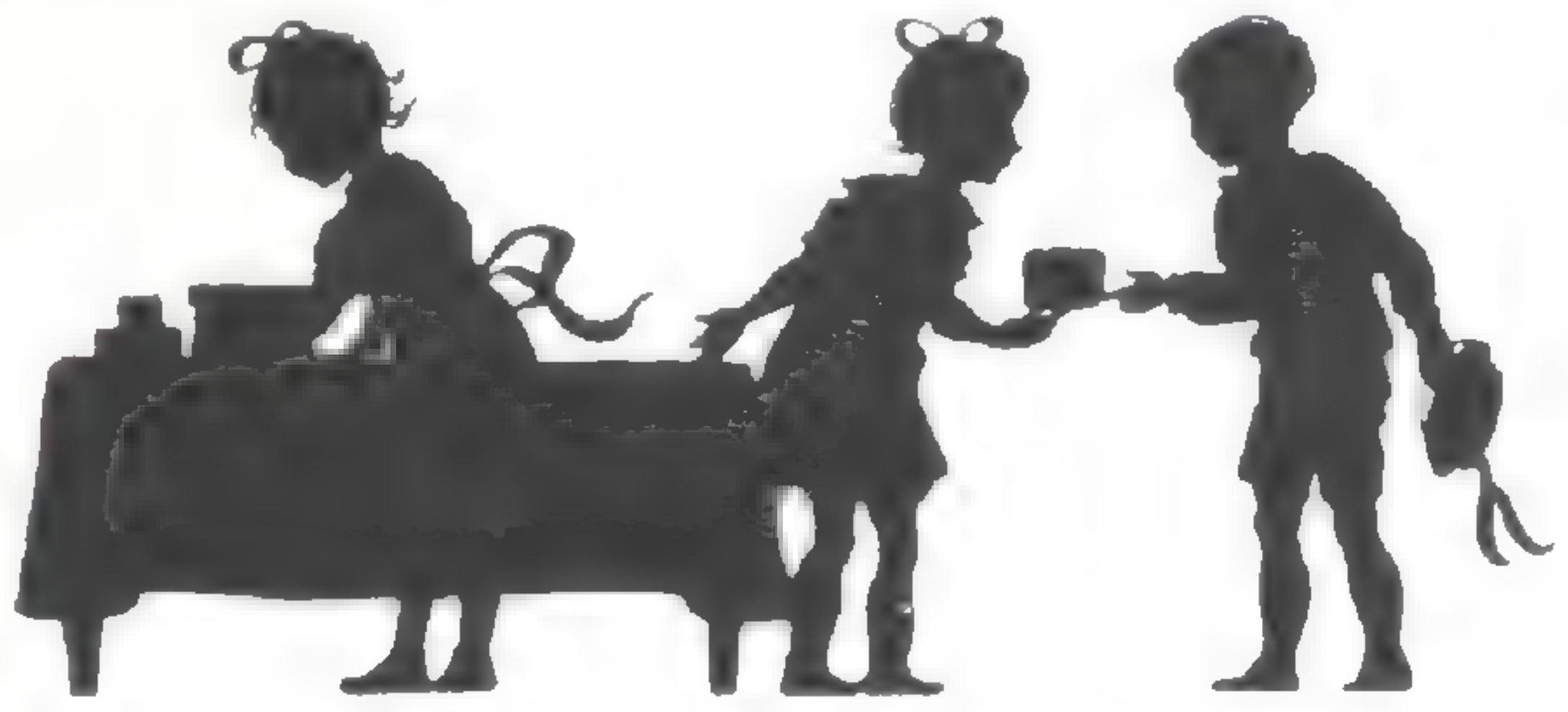
Plant Talk From The Gardenview Restaurant

Coffee, Cocoa, Tea & Cola

FOOD FACTS:

Coffee, cocoa, tea and cola are favorite beverages of people the world over partly because of the stimulants these drinks contain. These plants come from different plant families but all produce alkaloid stimulants. Tea and coffee contain the stimulant caffeine. Cocoa contains the stimulant theobromine and cola contains both caffeine and theobromine.

Each of these plants is native to certain areas. They are all tropical evergreen trees and shrubs and are now cultivated in tropical areas around the world. Tea is a member of the family Theaceae and is native to Asia. Coffee belongs to the family Rubiaceae and cola is a member of the family Sterculiaceae. Both are native to Africa. Cocoa is also a Sterculiaceae but is native to South America.



FOOD TIPS:

From Ces and Judy—

Chocolate Brownies

1 cup sugar
2 eggs
2 oz. unsweetened chocolate
⅓ cup butter
½ cup flour
½ tsp. baking powder
¼ tsp. salt
½ cup chopped pecans
½ tsp. vanilla

Beat eggs and sugar well. Melt butter and chocolate together. Sift dry ingredients together. Add eggs and chocolate to dry ingredients, then add nuts and vanilla. Pour into greased 9×12 inch pan and bake at 350° for 40 minutes. Do not overbake—does not meet ordinary tests for doneness. Makes 12 brownies.

Kids' Tip—Cocoa is crushed cocoa beans while chocolate is cocoa beans with added fat. The compound theobromine from cocoa and the caffeine from tea and coffee have almost the same shape chemically.

FOOD FUN DAYS:

Chocolate Marshmallow Dipping

Every Thursday in March and April from 3:30 p.m. to 4:30 p.m. we will have melted chocolate, marshmallows and fresh fruit so you can dip your own.

High Tea

Each Wednesday in March and April at 3:00 p.m. we will have Devonshire Tea featuring tea sandwiches, scones, fresh whipped cream and raspberry jam.

Spring Flower Show Preview

The Gardenview Restaurant will be serving a special hot buffet dinner from 5:00 p.m. to 8:00 p.m. on March 8.

Sunday Brunch

Sunday Brunch returns to the Garden beginning March 3. Call Ces and Judy in the Gardenview Restaurant at 577-5196 for details.

Book Review *The European Garden Flora*

While a book with this title may not at first seem appropriate for use in the Midwest, an examination of the first of six volumes to be published reveals that it is worth a second consideration. The project to produce a comprehensive series of volumes treating the "plants cultivated for amenity" in western Europe is being sponsored by the Royal Horticultural Society and published by the Cambridge University Press. The *European Garden Flora* will provide descriptions of about 12,000 species of plants. They will be contributed by specialists in the various families, so they will be up-to-date and critical. In addition to the descriptions, fine line drawings are included as well as "informal keys" that allow the easy identification of the plants, based on easily-recognized characters. The first volume to be published is actually volume number 2, and it contains treatments of 17 families, including the orchids, bromeliads, and aroids. Dr. Thomas B. Croat, Paul A. Schulze Curator of Botany here at the Garden, treated most of the species in the aroid family.

The volumes should be most useful to the serious gardeners among the membership, and will all be available, as published, in the Garden Gate Shop. Through a special arrangement with the publisher, we are able to offer these volumes at the price of $53.50, discounted from the list of $59.50.

—Marshall R. Crosby
Director of Research

Answer Service Needs Books

One of the handiest reference sources used by the Garden's Answer Service is the *Time-Life Encyclopedia of Gardening*. The Answer Service's set is falling apart and the series is no longer in print. If you have a set at home and would like to donate them to the Garden, please call Glenn Kopp in the Education Department at 577-5140. Volumes for which there is the greatest need are:

- Bulbs
- Flowering House Plants
- Flowering Shrubs
- Greenhouse Gardening
- Lawns and Ground Covers
- Perennials
- Herbs
- Cacti and Succulents
- Pests and Diseases

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PINUS TABULIFORMIS

Future New Plant for St. Louis

During an extended visit to China in the fall of 1981, I became intrigued with a handsome pine. It was used extensively in plantings, particularly near various former imperial compounds in Beijing and Shenyang. The pine turned out to be *Pinus tabuliformis*, Chinese pine, it was on the average 35—50 feet tall with a 25—30 feet spread. The tree had a handsome, somewhat horizontal architectural character with plate-like bark. The tree is reported to live for more than 300 years under cultivation. The medium green needles are held in bundles, 2—3 medium texture needles per bundle approximately 6 inches long.

Pinus tabuliformis is growing on the Garden grounds in the Japanese Garden from a 1978 collection. These plants are growing quite well and are over 4 feet tall. *Pinus tabuliformis* promises to be a fine ornamental for the Midwest, showing excellent resistance to Diplodia blight, a disease which is devastating many of the *Pinus nigra*, Austrian black pine, in the St. Louis region and is much more cold resistant than *Pinus thunbergiana*, Japanese black pine.

We have been fortunate enough to recently procure 4 kilograms (8.8 lbs.) of *Pinus tabuliformis* seed through an exchange with the Beijing Botanical Garden. The seed they sent was collected in the wild from Inner Mongolia, which has a very cold, open climate not dissimilar to the northern plains region of the U.S. We are undertaking a cooperative effort with a number of nurserymen in various northern states to facilitate the future commercial availability of this interesting pine.

—Alan P. Godlewski
Chairman, Department of Horticulture

Garden Diary on Sale

The Garden Club of St. Louis, in conjunction with the Missouri Botanical Garden, has just published a handy new book, *The Garden Diary, Monthly Care for Midwest Gardens*.

The book, the first of its kind for local gardeners, is packed full of useful gardening tips and contains space to record three years' worth of notes about your own garden.

The 96-page, wire-bound book with full color cover was edited by Patricia R. Bush and illustrated by Francis T. Martin. It is the culmination of over two and a half years of work. The book is available in the Garden Gate Shop for $12.95. Buy several. They make excellent gifts.

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BULLETIN

VOLUME LXXIII, NUMBER 3
MAY-JUNE 1985

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The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $35 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden shops and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

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Comment

''Spring Beauties''

Finally it is Spring. The Garden is in its glory and outdoor events are in full swing. If you have not visited the Garden lately, now is a wonderful time to come and see what is new and what has changed.

We have recently planted a new rhododendron garden on the grounds. Actually it is three gardens including an azalea bowl, a rhododendron glen and a magnolia glade. It is planted along the pathway between the tram shelter and the Climatron. Both evergreen and deciduous varieties are included to enhance the area all year long. The new garden was made possible through the generous gifts of Mr. and Mrs. Stanley Lopata and the estate of Eyvonne Huch.

If you have not seen the dwarf conifer garden, you will want to stop by the area in front of the Mediterranean House. Spoehrer Plaza is planted in orchid and white this year. The area around the lily pools will be deep lavendar and yellow and the gardens near the Linnean House will be silver and lavendar with a touch of gold. In another month, the rose gardens will be at their peak with many new varieties displayed.

The Garden begins its extended summer hours on Memorial Day and will be open until 8 p.m. daily. After a hard day at the office, it is delightful to stroll through the quiet gardens. I can personally attest to its therapeutic value.

A new snack bar in Flora Gate, where visitors can buy cold drinks and snacks, also opens Memorial Day. Tables and chairs under the Flora Gate Canopy provide a tranquil setting for a refreshing snack.

Of special note, is the 1985 Japanese Festival, June 15 through 23. This will be the tenth annual festival and plans include new entertainment, films, exhibits, demonstrations and food. This year a full day of activities for Members Only is planned for June 17.

Spring and summer are very special seasons at the Missouri Botanical Garden. Come often and enjoy.

Peter H. Raven

GARDEN AVAILABLE FOR PRIVATE PARTIES

Having a party? A wedding? Need a place for a business meeting? The Missouri Botanical Garden can provide facilities and catering for your special occasion whether it's large or small. And we have years of experience.

The Garden is unquestionably the most beautiful site in St. Louis for any occasion. But we are much more than just a pretty face. Here's what we offer:

- 500 parking spaces for your guests,
- A well-trained staff to handle logistics.
- A 400-seat auditorium fully equipped for audio-visual presentations.
- Indoor and outdoor locations available.
- Space for luncheon meetings.
- In-house catering by Green Tree Gourmet.

Think of the possibilities! A wedding in the rose garden...a cocktail party in the Japanese Garden...a formal dinner in the barrel-vaulted Monsanto Hall...club meeting in the new Flora Gate Meeting Room...a stockholders meeting in Shoenberg Auditorium. The possibilities are endless, and exciting.

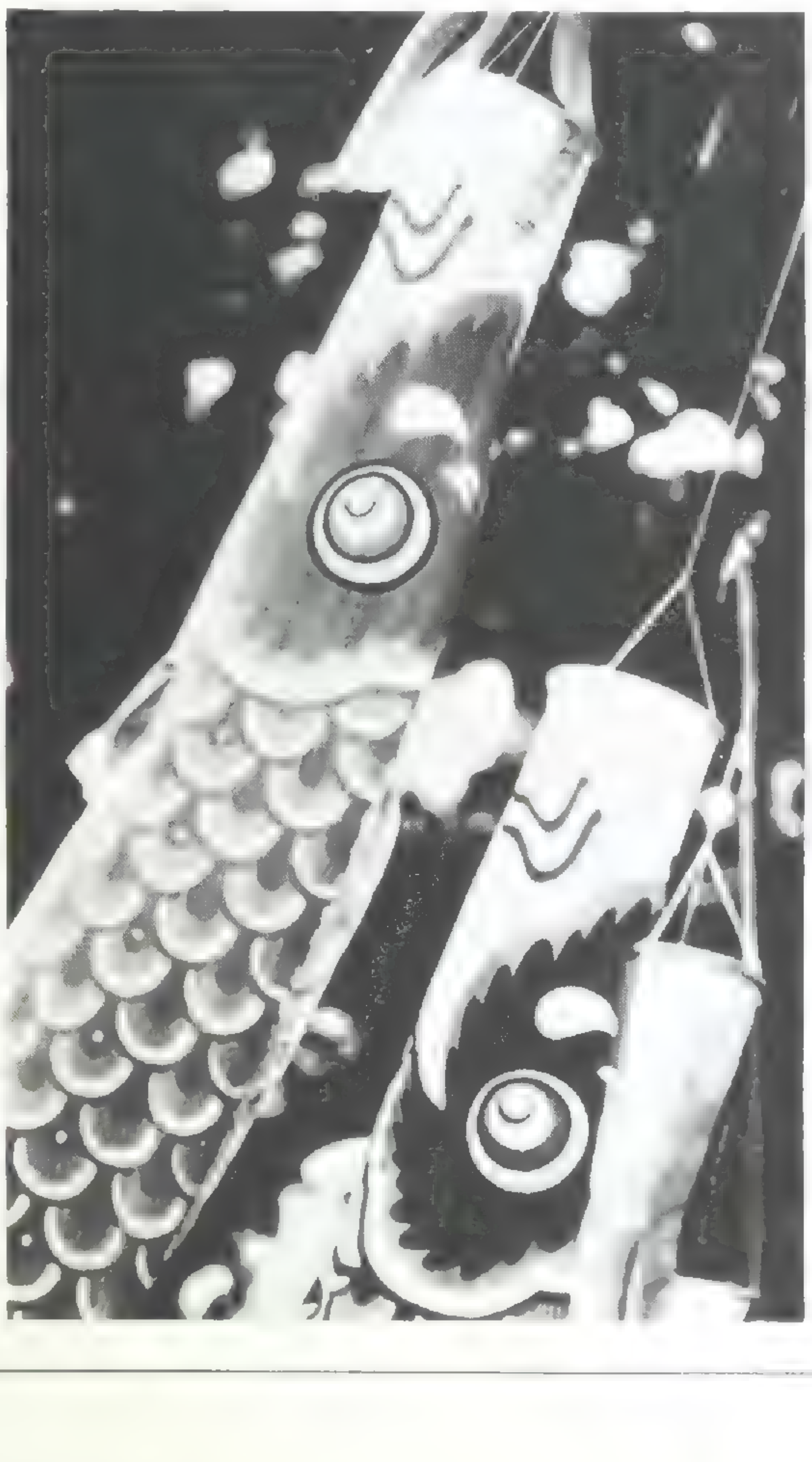
To reserve a portion of the Missouri Botanical Garden for your very own, call us. For information on rentals, call Facilities Manager Teri Dresler at 577-5144. For catering information, call Green Tree Gourmet at 577-5196.

10th ANNUAL

Japanese Festival

JUNE 15-23

Sponsored by
The Seven Up Company



MONDAY, JUNE 17 IS MEMBERS' DAY

For the first time, there is a day during the Japanese Festival set aside for special Member programming. Monday, June 17, is Members' Day, and while the public is invited to come see the exhibits and performances, only Garden Members can register for the exciting workshops that day.

Reservations are required, except as noted, and space is limited, so select your favorite and call 577-5125 after May 15.

The Art of Japanese Gardening, walking tour included. Conducted by Charles Hooker, superintendent of the Japanese Garden. 11 a.m., Botanical Room.

Kitemaking Workshop, conducted by master kitemaker Atsushi Moriyasu. Fee $3.50. 1 p.m., Botanical Room.

Dollmaking and Ornamental Ball Workshop, conducted by Yukari Kanesaka. Fee $4. 1 p.m., Missouri Room.

Ikebana Demonstration, teachers from the various schools of Ikebana will be available to demonstrate and discuss the techniques of this ancient art from Japan. Conducted by Ikebana International, St. Louis Chapter #3. (Reservations not required.) 2-4 p.m., Orthwein Floral Hall.

Shiseido Cosmetics Beauty Workshop, 2:30 p.m., Botanical Room.

The Miniature Art of Sword Fittings, a slide show/lecture with Ron Hartmann. 3 p.m., Missouri Room.

Japanese Folktales. Have a box dinner and hear traditional folktales of Japan. Fee $6. 6 p.m., Japanese Garden, meet on Spoehrer Plaza.

Shiseido Cosmetics Beauty Workshop, 6:30 p.m., Botanical Room.

Bonsai Workshop, conducted by the Bonsai Society of Greater St. Louis. 6:30 p.m., Botanical Room.

Japanese Festival / SCHEDULE OF EVENTS

It's almost here and you won't want to miss a single thing. All nine days have been packed full of food, fun and entertainment. Activities marked by ** or * require tickets. (See information below.) Many workshops require registration, so call early.

■ Saturday, June 15: Opening Day
Opening Ceremony
Okinawan Dance
Martial Arts/Kendo
San Francisco Taiko Drummers
Fashion Show*
Kabuki Solo Dance*
Ohio Minyo Dancers
Opera Theatre Trio**
Candlelight Walk

■ Sunday, June 16
Kabuki Solo Dancers*
San Francisco Taiko Drummers
Martial Arts/Kendo
Okinawan Dance
Fashion Show*
Ohio Minyo Dancers
Southern Illinois University Suzuki Players*
Opera Theatre Trio**
Candlelight Walk

■ Monday, June 17: Members' Day
(See page 3.)
Film: The Making of Japanese Art Swords
Classical Japanese Dance
Slide Show: Japanese Festivals
Martial Arts/Kendo
Fashion Show
Film: Living Arts of Japan
Special Members Program

■ Tuesday, June 18
Koto Concert
Classical Japanese Dance
Japanese Cooking Demonstration
Film: Scroll of Time; A Visual History of Japan
Japanese Folktales
Candlelight Walk

■ Wednesday, June 19: Japanese Garden Day
Walking Lecture Tour: "Symbolic Expressions of Seiwa-En"
Slide Show: The Japanese Garden—A Living Tradition
Koto Music in the Garden
CASA Suzuki Players
Slide Show: Seiwa En: Garden of Pure Clear, Harmony & Peace
Candlelight Walk

■ Thursday, June 20
Bonsai Demonstration
Tea Ceremony
Talent Education of St. Louis, Suzuki Players
Film: The Making of Japanese Swords
Lecture: The Making of Rimpa in Kayama Matazo
Candlelight Walk

■ Friday, June 21: Children's Day
Children's Tour of Japanese Garden
Judo Demonstration
Japanese Folktales and Puppetry
Martial Arts
St. Louis Children's Choir
Talent Education of St. Louis, Suzuki Players
Film: Hi Tech in Japan
Candlelight Walk
Workshops: (age 8 and older)
  Origami—fee $3.50
  Kitemaking—fee $3.50
  Reservations: 577-5125 (after June 10).

■ Saturday, June 22
Tea Ceremony*
Denver Taiko
Indiana Minyo Dancers
Japanese Folktales and Puppetry*
Woodblock Print Demonstration
Martial Arts/Kendo
Kabuki Solo Dance*
Barefoot Kyogen Theatre**
Candlelight Walk

■ Sunday, June 23
Indiana Minyo Dancers
Martial Arts/Kendo
Denver Taiko Drummers
Kabuki Solo Dancers*
Southern Illinois University Suzuki Players*
Woodblock Print Demonstration
Barefoot Kyogen Theatre**
Candlelight Walk

TOURS: Guided tours of the Japanese Garden will be given daily at 10 a.m., except on Sundays, when tours will be at 2 p.m. A special children's tour will be offered at 10 a.m. and 11:30 on Friday, June 21. All tours meet and leave from Spoehrer Plaza, outside the Ridgway Center, upper level.

FOOD: Gardenview Restaurant will be open daily from 9 a.m. to 8 p.m.

- Flora Gate Snack Bar will be open daily from 11 a.m. to 8 p.m.
- Food Booths on the grounds will be open daily from 11 a.m. to 11 pm. (except Monday, June 17, 11 a.m. to 6 p.m.).

CRAFT & TOY BOOTHS (on the grounds): Open daily from 11 a.m. to 6 p.m.
Eve's Japan
Japan America Society
Japanese Language School

CRAFT DEMONSTRATIONS (in the Ridgway Center): Open 11:30 a.m. to 6:30 p.m. on weekdays. Open 11:30 p.m. to 8 p.m. on weekends.

EXHIBITS (in Ridgway Center): Open 11:30 a.m. to 8 p.m. on weekends. Beaumont Room, Garden Room, Monsanto Hall, Orthwein Floral Hall.

TICKETS: As always, Members enjoy complimentary admission to the Garden.

**Advance ticket sales for Opera Theatre Trio (performance on June 15 & 16) and Barefoot Kyogen (performances on June 22 & 23) begin Monday, June 10 at the ticket counter in Ridgway Center (M-F). Weekends the tickets will be sold at the ticket booth at the tram shelter. All seats for these performances are $5. These tickets also entitle the bearer to complimentary admission to the Garden the day of the performance.

*Other performances in Shoenberg Auditorium are $1 for adults, 50¢ for children age 12 and under. Tickets are sold the day of performance only, at the tram shelter.

RAIN: In case of rain, outdoor performances will be cancelled.

INFORMATION: Beginning Monday, June 10, a special phone line will be provided to answer your questions on the Japanese Festival. Call 577-5194, from 9 a.m. to 5 p.m. Monday through Friday, and 9 a.m. to 6 p.m. on the weekends.

Report From Ethiopia

THE DIME CAPER

BY ROY GEREAU

In October and November of 1984, I was the botanical collector on an "exploring expedition" down the Omo River in southwestern Ethiopia. The melodramatically-written expedition prospectus mailed to the participants before the trip stated, "One such safari will attempt to cross the 'Plain of Death,' through the territory of the Bodi tribe to the fortresslike mountains of the Dime (Dee-May) Makji."

The "Plain of Death" is really a misnomer, as it is a very rich savanna about ten miles wide, full of Cape buffalo and zebra, where I suppose one could get eaten by a lion, but it's no more dangerous than many other such places. The Bodi are a Nilotic people (tallish, slender, very black and finely and sharply featured), who live and cultivate sorghum on the Omo at a newish village called Dabul, and have a good foot trail across the plain to their older villages on the lower slopes of a fairly isolated massif, the summit of which is variously called on the few existing maps, Mt. Smith or Mt. Dime. The mountain is 2530 meters high and located at about 6° 17′ north, 36° 12′ east.

The Bodi live mostly by herding their Zebu cattle and secondarily depend on cultivating sorghum and a very little maize. They are fierce, proud, and warlike. The men shave all the hair off their bodies and all but an ornamental fringe from their heads, and are consequently constantly demanding razor blades, for which they will trade parched maize (which I dubbed "Bodi corn nuts") and dryish cooked sorghum meal, and will carry heavy loads for great distances. For beauty's sake, most of the women have their two bottom front teeth knocked out at puberty, and have their lower lip pierced. They stretch the lip around large flat metal or earthenware plugs that weigh up to a pound.

On November 7, six of the nine people on the expedition set out from Dabul to go to the village called Dime above the Bodi villages on the west slope of the massif about 1000 meters below the summit. We didn't inquire well enough at Dabul, so we weren't on the trail at first, but we stumbled across it eventually and followed it up to one of the older Bodi villages. We were on a perfectly clear trail by then, but for some reason the expedition leader decided that we needed a guide, so we hired an older fellow (maybe 40) named Karoda to take us up to Dime for two birr ($1). We didn't quite get the village idiot, but he seemed to be quite the laughing stock, and was very slow, garrulous, and fussy. Two younger guys tagged along and ended up carrying some people's packs for razor blades. We hiked up through the Bodi villages, which stopped quite abruptly at the top of a steep rise on a mountain shoulder, then had a really tough climb ending in late afternoon at Dime, where everything was very different. First of all, our Bodi guide and porters were obviously thoroughly unwelcome.

The Dime people are West Cushitic-speaking agriculturalists, linguistically, culturally, and economically completely isolated on this one mountain. Racially, they are strikingly different from the Bodi, being smaller (most of them were somewhat shorter than I, at 5′ 7″), a moderate chocolate brown in complexion, and many of them somewhat thicker of build and heavier of facial features than the Bodi. An anthropologist we met in Addis Ababa described the West Cushitic people as racially intermediate between the Semitic-speaking people to the north and the Bantu further south, and that seems to fit the Dime quite well. They have lived on and farmed the Dime massif for an unknown but very long period, as evidenced by the very ancient-appearing terracing of both used and abandoned fields. The Bodi, on the other hand, have probably occupied the adjacent lowlands for only the last 80 to 150 years, and are still very actively expanding with new settlements like Dabul. The Dime simply say, "We have always lived here." They have a diverse agriculture based on ensat (the "false banana," whose stems provide a very reliable source of starch), and including sorghum, maize, grain amaranth, sweet potatoes, various beans, t'ef, papayas, hot peppers, and coffee. They herd some cattle and goats and generally appear to have a more dependable and balanced diet than the Bodi. Being primarily agricultural rather than pastoral, they were never very warlike, so their relationship with the Bodi is a classic case of the lean, mean, hungry herders chronically preying on the peaceful, vulnerable, richer farmers.

The Dime people greeted us quite politely, saying "You are welcome here and we are happy to see you, but why do you bring with you these Bodi who kill us and steal our cattle?" A reasonable enough question. We paid the Bodi off and told them to go. Karoda rolled up his birr note, stuck it in the hole in his right ear lobe, and sat back on his haunches with his robe wrapped around him to enjoy the spectacle of our dealing with the Dime and to grab any food that might pass by. The two younger Bodi stared lazily and inso-

“YOU ARE WELCOME HERE AND WE ARE HAPPY TO SEE YOU, BUT WHY DO YOU BRING WITH YOU THESE BODI WHO KILL US AND STEAL OUR CATTLE?”

lently at the Dime women and sorghum fields, a lot like a couple of cycle gang members hanging around a clean-cut college bar.

In spite of our escorts, the Dime were cordial enough to us. About half of them had been Christianized by European missionaries, for whom they had constructed a thatched wooden building to serve as church and school. They offered us shelter for the night in the church/school, and shared what little food they could with us, refusing our offer of payment.

In the morning, we witnessed an extraordinary church service, the preacher reading aloud from a tattered amharic Bible and translating into Dime for the congregation. We purchased some papayas and sweet potatoes from the Dime, mostly with aspirin and vitamin tablets, and declined to buy an obviously stolen Dime hen from one of our Bodi hangers-on, all three of whom had hung around all night. Then the chairman showed up to meet us and hear our story. The chairman (“likimambar” in Amharic) of a rural Ethiopian community is a democratically elected leader, responsible for the people's welfare and answerable to the central government.

It was soon clear that this chairman's greatest following was among the non-Christian contingent, who were much less inclined to befriend us than were the Christians. Roy Smith, our British expedition leader, delivered a rather overblown speech of introduction to the chairman and people which had to be translated first into Amharic by Tesfaye, our guide, and then into Dime by the preacher. The chairman responded in an impassioned oration that he was pleased with our interest in them, but that they were “already as a dead people” under siege by the Bodi, that the government was doing nothing to help them, and that we had better leave immediately for our own safety.

Then a loud public argument broke out in which about half the people thought we should be held in a storehouse for three days while a runner was sent over the mountains to ask the District Commissioner what to do with us. Not much liking this development, we broke up into four groups and quickly headed out in four different directions. I went alone, paying two men one-half birr (25¢) to show me a path going up the mountain. Once out of sight of the village, I dismissed them and continued upward, intending to spend the day collecting plants, come back at sunset to skirt the village by moonlight, and camp lower down. A decent plan, since it was the night of the full moon, and even very warlike Africans are very much homebodies after sunset.

The path gave out very soon, and I found myself in the midst of some of the densest vegetation I have ever seen. Chopping my way with my machete through thickets of *Rubus, Smilax*, and viciously spiny Rubiaceae and Celastraceae, I came out onto a steep hillside of grasses up to 6 m high interrupted by lava outcrops covered by still more spiny thickets. By the time I had traveled about a mile and had climbed 100 meters, it was mid-afternoon, and quite obvious that I would not reach the summit 1000 m above by that route. I decided to make the best of things and collect some of the rather interesting plants that I saw around me right there, including a leguminous tree with huge beans and a *Polygala* species with beautiful light purple flowers. With my field press a little more than half full, I headed downhill, following the trail I had left on the way up. Unfortunately, I lost my trail at the edge of the thickets, and in my hurry to be through them by sunset, I veered off the ridge top I had been following and eventually found myself beside a totally unfamiliar stream running under a nearly unbroken layer of arching tree roots. The direction of the stream and of the westering sun gave me my bearings, and I headed back through the thickets toward the ridge top, too tired and worried to retain any taxonomic curiosity. Erect unbranched shrubs grew so close together in the marshy places that I had to bend them over and walk on the prostrate stems, afraid of slipping and being trapped, and impenetrable hedge-like walls forced me from the most direct path. By the time I reached the ridge top, not more than a quarter mile from the stream, I was soaked with sweat and nearing exhaustion, and the light was failing fast. Pushing on just a little further, I came out at last light into a grassy field just above the trail from the village. I cut down a pile of tall grasses, crawled under them wrapped in the tent fly that was my only protection, and gratefully fell asleep as the full moon rose over the peak I had failed to reach.

After the worry and exhaustion of the day, the storm that night was rather an anticlimax. It thundered and lightninged and poured and got miserably cold. I pulled my field press under the fly and used the machete as a pole to keep the clammy nylon off my skin, then lay very still and thought about St. Louis summers and good friends and Guinness until I finally slept. At dawn everything but my specimens and my field book was drenched, and I packed off down the trail as fast as possible. I met one of the Christian men at the edge of Dime; understanding my situation, he silently showed me a path around the village and set me on the rocky road to Bodi-land. A few early-rising Bodi gawked at my soaked clothes, then cheerfully showed me the trail to Dabul for a total of three razor blades. By mid-day I was back in camp, with only 54 herbarium sheets and a good story to show for my trouble.

A BODI MILKMAN

Roy Gereau has been a curatorial assistant at the Missouri Botanical Garden since April 1983. His trip was made possible, in part, through funding by the National Geographic Society, World Wildlife Fund, and the Garden.

A PERSONAL NOTE:

Hunger In Ethiopia

Roy Gereau in camp

ETHIOPIA is a land of rich and ancient history, great natural beauty, massive human suffering, and above all, overwhelming complexity. Recent news reports from Ethiopia have concentrated exclusively on drought, famine, and the war in Eritrea, giving the impression of unmitigated human suffering throughout the country. Although the resultant outpouring of food and medical aid has helped to relieve some of the immediate symptoms, long-term solutions to the underlying problems depend upon an understanding of the ecological and social complexity of both Ethiopia and the rest of sub-Saharan Africa.

One of the principal keys to Ethiopia's extreme complexity is its topography. Within a land area nearly twice that of Texas, elevations vary from 300 feet below sea level in the northern Danakil Plains near the Red Sea to 15,246 feet above sea level at the summit of Mt. Ras Dashan. The land is dissected by the Great Rift Valley and many subsidiary geologic rifts (including the Omo River Valley), causing extreme localization of weather conditions and human populations. There are five major topographic regions, four rainfall regimes, six climatic regions, and four major agricultural systems within Ethiopia, each of these subject to considerable local variation. The 42 million people speak about 70 languages in three major language groups; of these, only four are written. In the face of this kind of diversity, one can make almost no defensible generalizations about the country as a whole.

The Omo River Valley did not appear to be particularly hard hit by the current drought and famine. On the lower part of the river (including the Dime area), we were traveling during the time of the annual "small rains," which account for 25-35% of annual precipitation, and the nightly rains gave me a lot of difficulty in drying my plant specimens. The local pockets of extreme hunger that we saw were all among Nilotic peoples on the more densely populated stretches of the river below the Dime area, and to be seasonal rather than chronic in nature. The ever-marginal food economy of semi-nomadic secondary agriculturists is most strained in the annual periods just before harvests. These communities or families living on the poorest land or under the most overcrowded conditions can easily starve in any given year without a region-wide catastrophe. Significantly, we saw little extreme hunger and no starvation among the ensat-cultivating peoples of the mountains beyond the river. The higher rainfall and more moderate temperatures of the mountains, combined with more diversified and dependable systems of agriculture, make these people much less subject to extreme seasonal fluctuations in food supply. Most importantly, however, the montane agriculturists were nowhere as crowded as the Nilotics on the lower river; thus competition for arable land was seldom, if ever, driving people to try to produce crops in marginal areas.

The four-day drive from the southern end of the river back to Addis Ababa was a thoroughly convincing demonstration of the correlation between overpopulation, starvation, and ecological disaster. "Back in civilization again" in a Toyota Land Cruiser, we climbed up out of the river valley and on to the central plateau. On the way, we passed first through scattered villages, then towns closer and closer together, separated by densely settled rural areas. The bare, trampled ground beneath the thorn scrub was the first evidence of overgrazing. Gradually, the shrubs gave out as well, finally giving way to a blighted moonscape of calcium-crusted, 20-foot-deep erosion gullies where no plants survived but the introduced weed, *Argemone mexicana*.

Although the National Tour Organization route carefully avoided the largest concentrations of the starving, the message of the environment was clear. Much of this land will never again produce food for human beings, yet there are many millions of people still there who all need to eat. As long as the population remains so drastically out of balance with the productive capacity of the land, nothing can save either the people or the land from destruction. No amount of foreign food aid or agricultural technology can alter the grim fact that if human beings do not learn to control their populations voluntarily, population control will occur automatically in the form of mass starvation in Ethiopia, the rest of Africa, and the whole world.

—ROY GEREAU

Gardening In St. Louis

E·S·P·A·L·I·E·R

BY *BobbiJo Jarvis*

This issue of the *Bulletin* introduces BobbiJo Jarvis, who recently joined the staff of the Garden as public horticulture specialist. Ms. Jarvis will coordinate several community programs, write horticultural articles and serve as horticultural spokesperson for the Garden.

Prior to joining the Garden, Ms. Jarvis was an horticultural instructor and writer for Callaway Gardens in Pine Mountain, Georgia, and a research assistant in the Departments of Horticulture and Plant Pathology at Ohio State University. Her interests range from flower and vegetable gardening to landscape design. Ms. Jarvis received bachelor of science degrees in agriculture and natural resources from Ohio State University.

For the gardener with limited growing space who wants to grow fruit trees or for those who enjoy creatively manipulating plants, an espalier (ess-PAL-ee-ay) offers many interesting possibilities. Espalier is the technique of training plants, usually trees and shrubs, to grow only in one flat plane.

Espaliers have many uses. Container grown espaliers can make an attractive living, movable screen or fence. In small European gardens, large fruit trees are trained on a wire or trellised against a wall or fence. Espalier ornamentals are often used to soften large blank spaces, as an ornamental feature in the garden, or to produce fruits and nuts in limited garden space.

Espalier was originated by the Romans, but it was the Europeans who perfected the technique where plants are grown all on one plane. Although infrequently used commercially, hobbyists often train plants with attractive foliage, fruit or flowers as espaliers. Grapes are one of the few commercial crops that are grown on trellises to a limited extent. This method not only conserves space but reduces maintenance and fruit picking time and labor.

Home gardeners interested in trying espalier may either purchase a pre-trained plant or start from scratch with an untrained whip.

Pre-trained espaliers can be expensive, though much of the guesswork has been removed. Initial training is most important for a successful espalier. An experienced horticulturist will prune, wire, and construct the trellis for the plant. All you need to do is plant it in your landscape or container. This can take all the fun and creativity out of it, and the adventurous will want to try it themselves.

To get started, young, supple plants should be purchased. Often broken or misshapen discounted plants work well in espalier. Three-foot-tall shrubs or trees work well, as limbs are flexible and can still be worked.

With plant in hand, a design should be chosen. The simpler the design, the easier it will be to maintain. Five of the more common styles are illustrated. Keep the design in mind during the important initial pruning so critical buds or stems aren't inadvertently removed.

Good cultural conditions, of course, must be met to ensure the plants survival after pruning. The plant should be set with main branches no closer than 6 inches from the wall or fence. This provides adequate air drainage essential for good plant growth. Consider individual plant needs for soil, drainage and minimum daily sunlight, especially if fruit or flower production is desired.

The initial pruning will be the most severe, preparing the plant for minimal continued training. If large branches or more than ⅓ of the plant is removed, prune while the plant is dormant. A rule of thumb is to never remove more than ⅓ to ½ the plant at any one time. If this is a problem with your espalier, two major prunings may be needed to get the plant down to scale without killing it. Pinching spurs or small stems can be done at any time of the year.

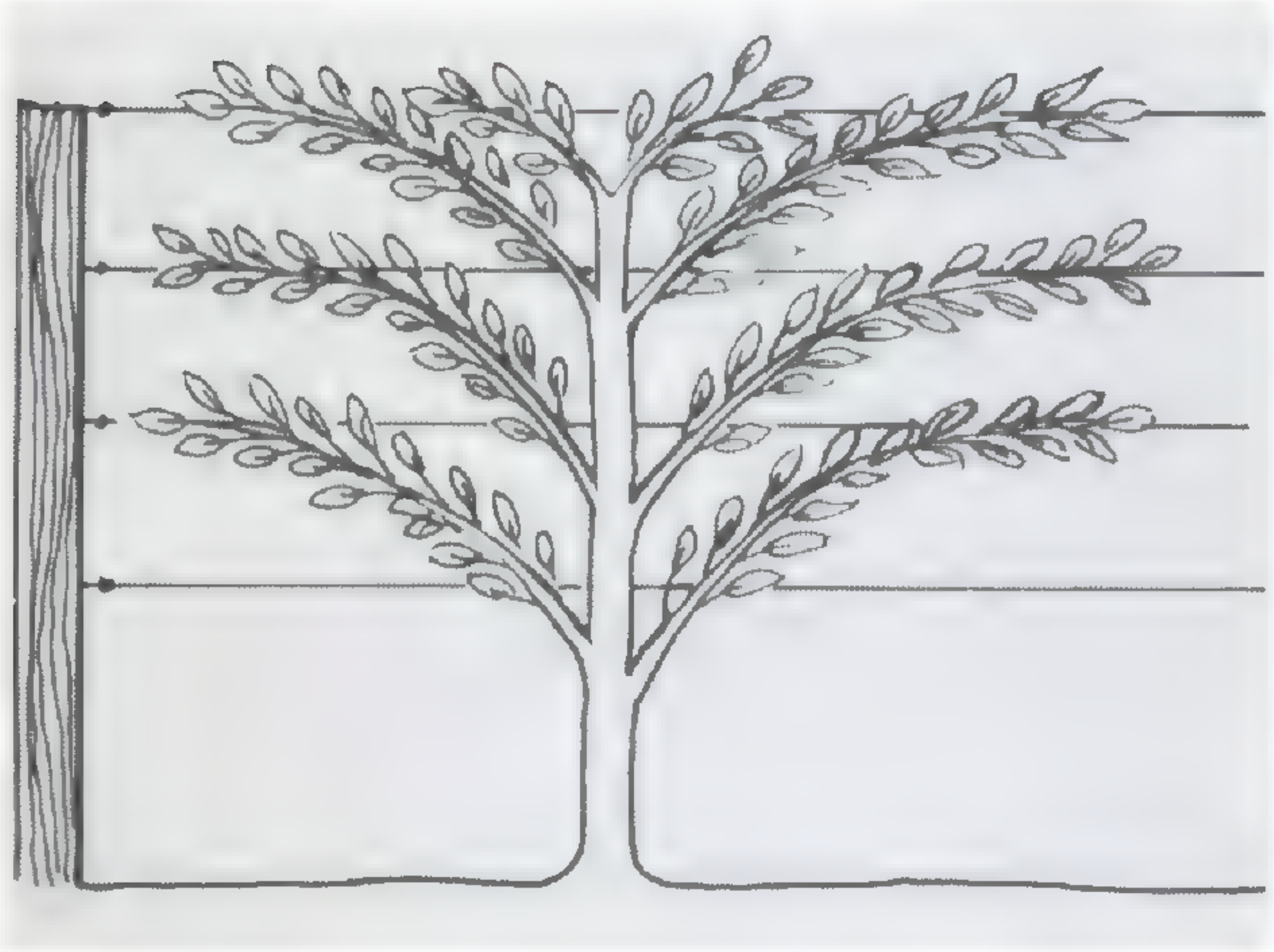
Once established, espaliers require little work each season. To maintain its shape, pinch all stray buds and stems that deviate from the flat surface or that grow beyond the pattern boundaries. If plants are grown for fruit or flowers, be careful to prune in the proper season.

Carefully train branches after pruning. This is best accomplished while plants are actively growing with flexible stems. In the spring, stems can usually be bent without breaking. A common way to train branches is to tie stems to wires or stakes left in place for a year or more. Use wire 8 - 16 gauge, depending on the size of the plant at maturity. The smaller the gauge, the thicker the wire. Vinyl-insulated wire is rust-resistant, helps avoid the possibility of girdling, and can reduce heat damage to stems. It can be anchored to a brick wall or attached to free-standing supports.

Tie branches loosely with soft strings, raffia, or budding bands made of rubber. If bindings are tight, fasteners will girdle and kill branches as the plant grows. Examine bindings regularly and loosen if necessary.

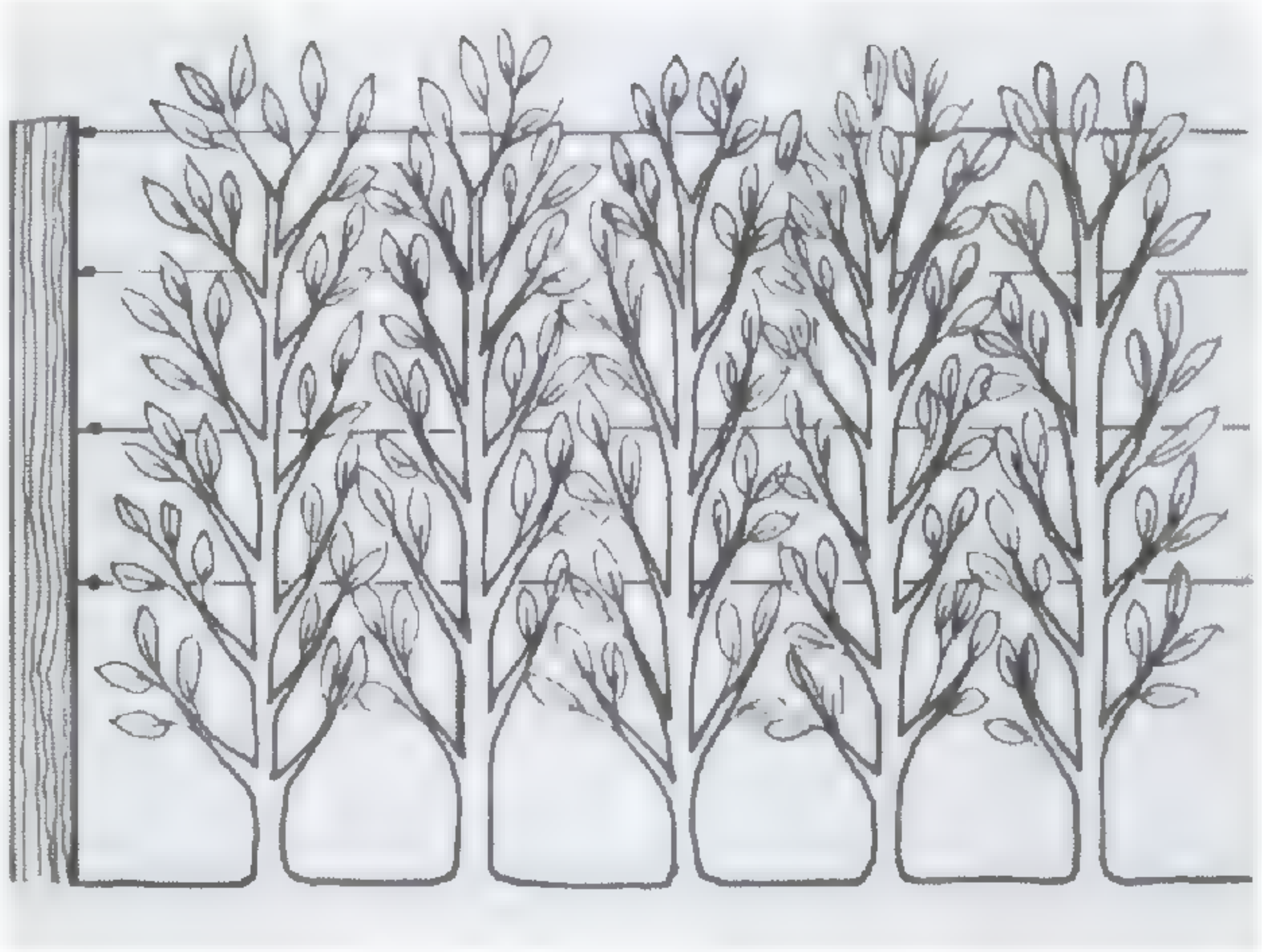
Adapt this ancient training principle to today's garden. Raise colorful and fruitful plants while sacrificing little outdoor gardening space.

ESPALIER



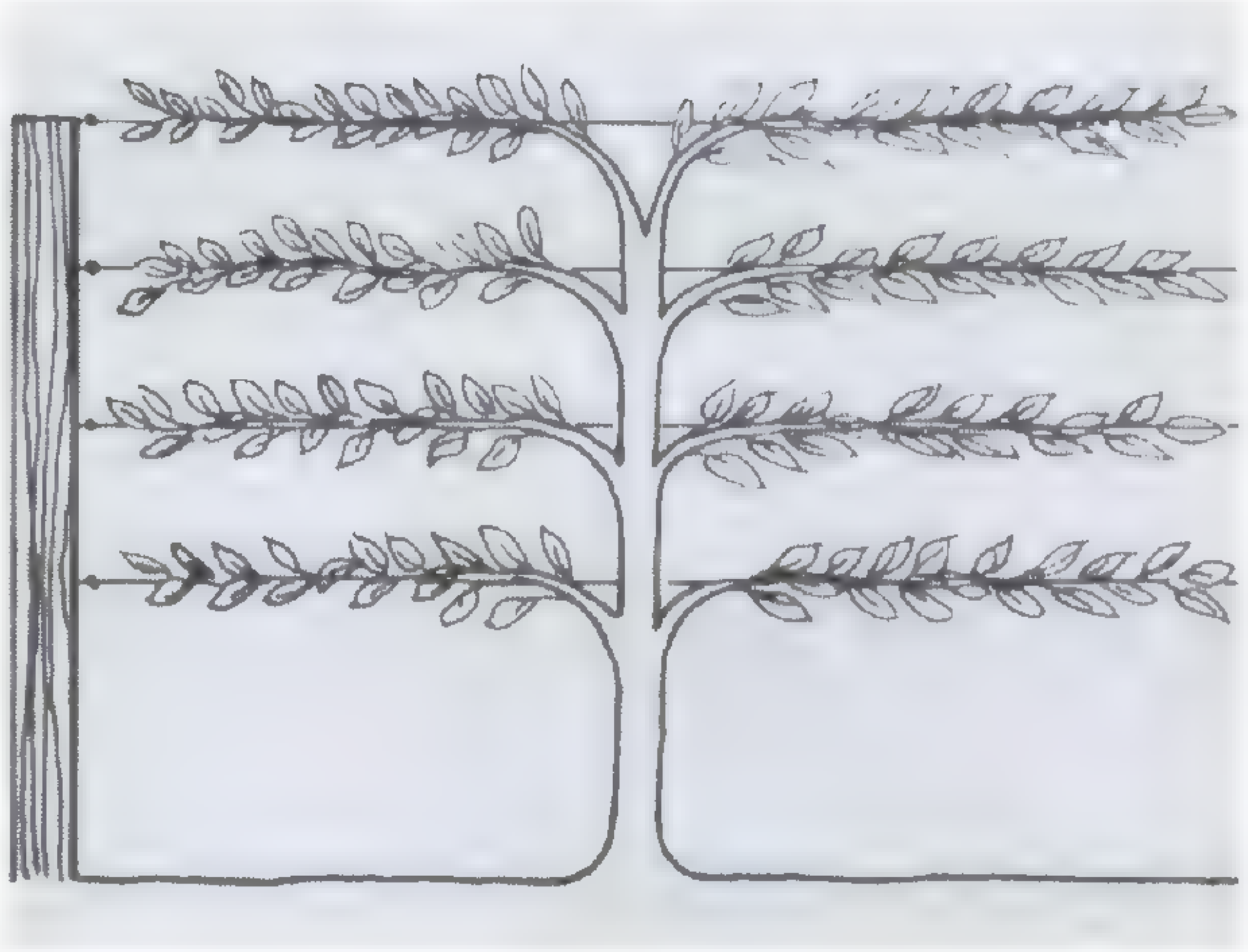
PALMETTE OBLIQUE

This form is quite versatile and easy to produce. You can start with a whip or a young branched tree and gradually bend the branches down to the wires.



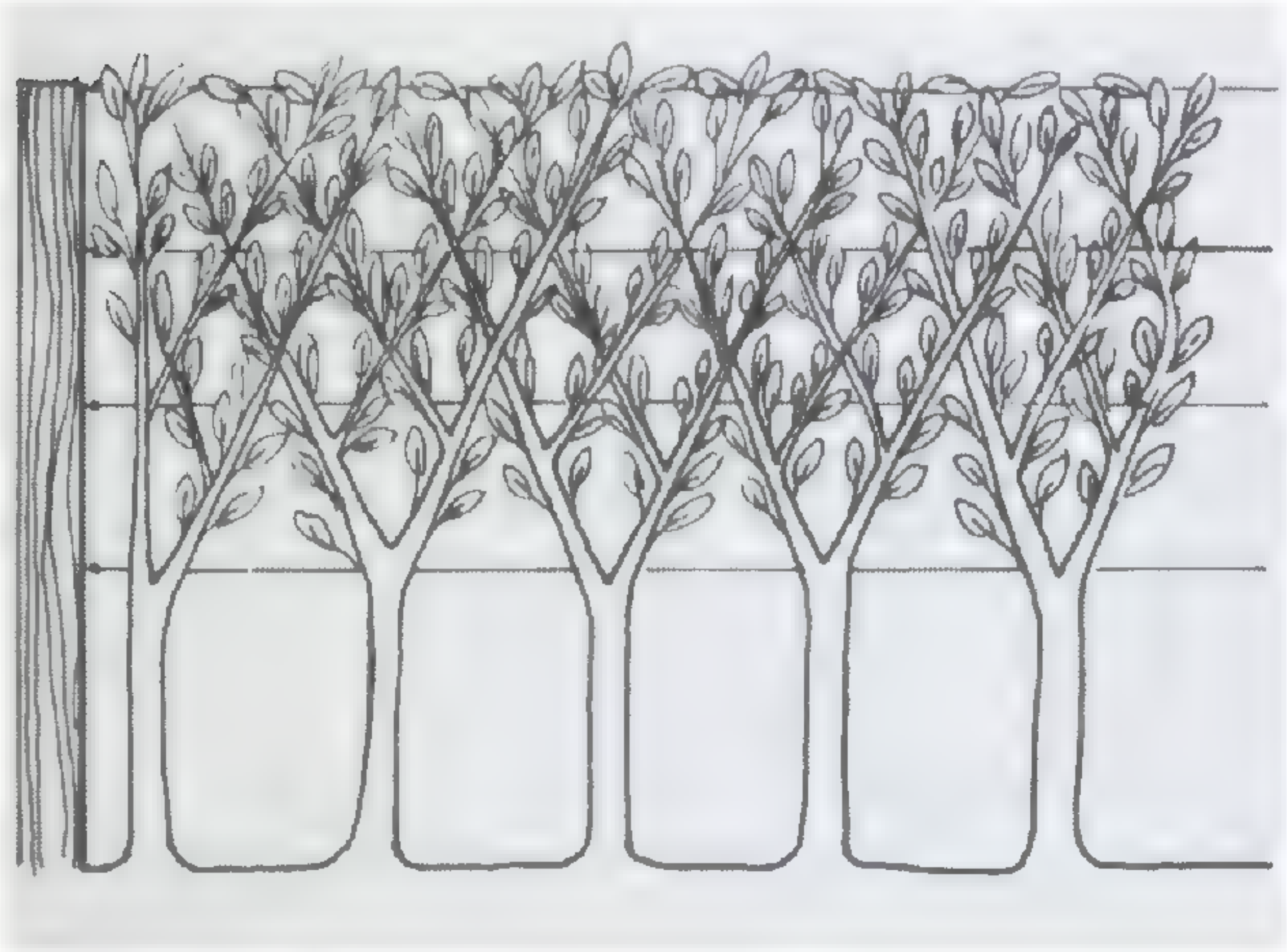
VERTICAL CORDON

Cordon is the simplest of espalier forms. This style is most efficient for fruit bearing plants. Few or many side branches may be allowed to grow.



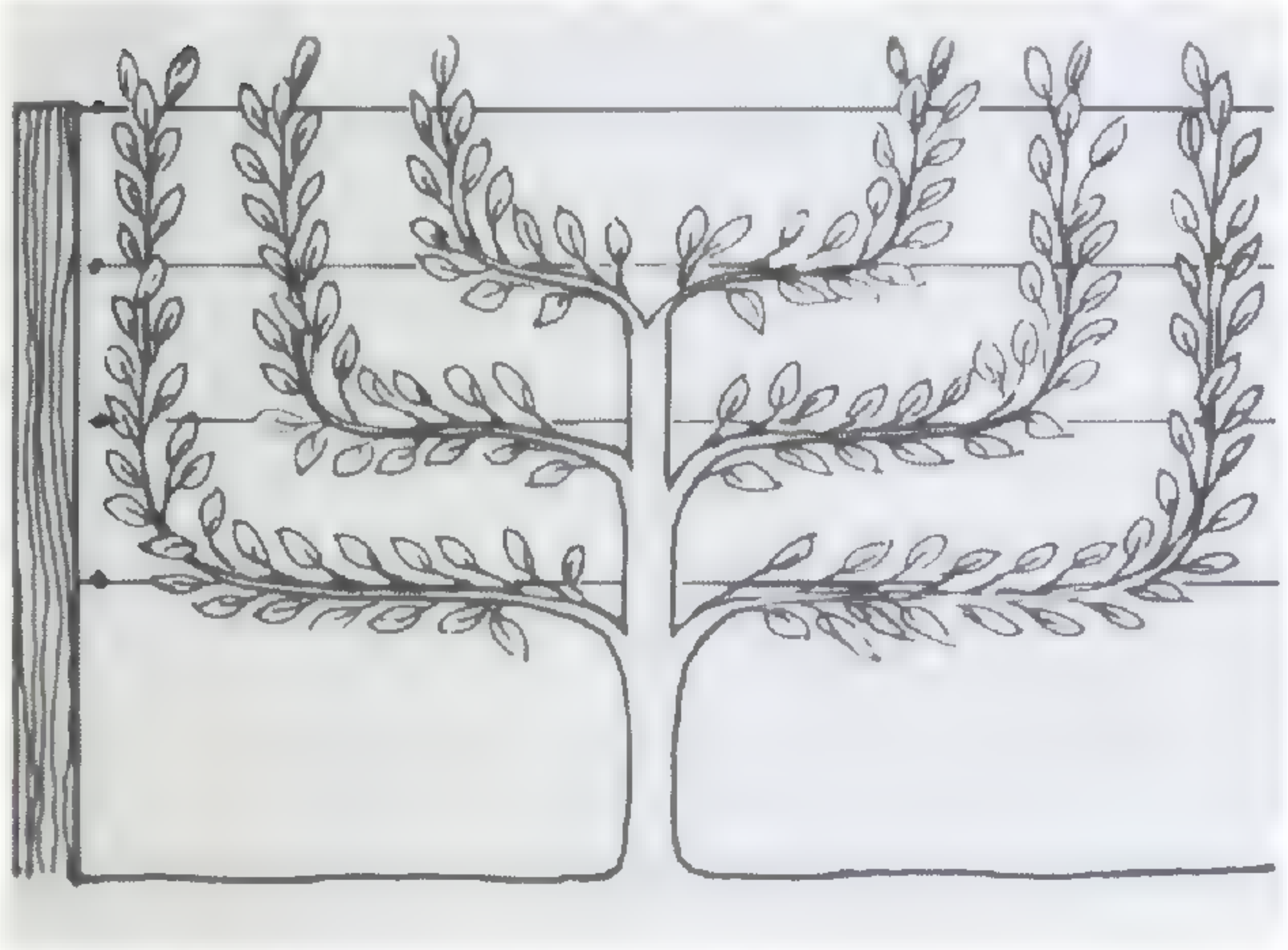
HORIZONTAL T

This form is flexible with angles varying from very narrow to 45° depending on space available.



BELGIAN FENCE

Stake branches at 45°-60° angles to produce a Y-shape. The longer the row, the more visual impact this style will have. Five feet long is minimum.



VERRIER PALMETTE

Palmette is a type of horizontal T espalier. Tiers should be spaced 12 inches apart with branches gradually bent upward at 5°-10° increments.

PLANTS • TO • CONSIDER

LATIN NAME	MAXIMUM HEIGHT	COMMON NAME
Acer palmatum	8–20′	Japanese Maple
Cercis canadensis	8–15′	Eastern Redbud
Cornus florida	8–15′	Flowering Dogwood
C. kousa	8–15′	Japanese Dogwood
C. mas	8–15′	Cornelian-cherry
Cotoneaster sp.	1–5′	Cotoneaster
Ficus benjamina	20′	Benjamin Fig
Ilex cornuta "Burfordii"	20′	Burford Holly
Magnolia spp.	25′	Magnolias
Malus spp.	20′	Crabapples
Philadelphus coronarius	9′	Sweet Mock-Orange
Prunus serrulata	20′	Oriental Cherry
Pyracantha sp.	6–10′	Firethorn
Rosa sp.	4–8′	Climbing Rose
Viburnum plicatun	9′	Doublefile Viburnum
Wisteria floribunda	15′	Fragrant Wisteria

MAY-JUNE

DAY-BY-DAY

MAY

For classes at the Garden, call 577-5140 for information and reservations. For Arboretum classes, call 577-5138.

7
Evening Walk in Japanese Garden
Tuesday, 6:30–8:30 p.m., meet in Garden Room, Ridgway Center. Enjoy the serenity of Seiwa-En in spring. The walk will be led by Charles Hooker, superintendent of the Japanese Garden. Members $7.50, non-members $11.

9-12
Herb Plant Sale
Thursday through Sunday, 9 a.m. to 5 p.m. (*See Highlights.*)

9
Timber Stand Improvement I
Wednesday, 7:30–9:30 p.m., Missouri Room, Ridgway Center. The first of two sessions will teach techniques for improving woodlands for timber, wildlife and aesthetics. Taught by Charlotte Schneider, resource forester, Missouri Department of Conservation. Members $4.50, non-members $5.50.

9
The Garden in Watercolors III
Thursday, 9 a.m. to noon, Beaumont Room, Ridgway Center. Third in a series of six classes.

11
Timber Stand Improvement II
Saturday, 10 a.m. to 2 p.m., Visitor Center, Arboretum. Second of two sessions. See May 9.

11
Historical Walk in Tower Grove Park
Saturday, 9 a.m. to noon. Meet at the Park Bandstand. Katharine Corbett and Mary Seematter of the Missouri Historical Society will guide you through this century old Victorian driving park. Members $10, non-members $12. Rain date is May 18.

11
Saturday Morning Series: Mother's Day Corsage
10:30 a.m. to noon, Missouri Room, Ridgway Center. Horticultural instructor Phil Carter will teach the basics of making a beautiful corsage. Appropriately timed the day before Mother's Day. Recommended for children 4 years of age and older.
Adult: Members $5, non-members $6.
Child: Members $3, non-members $3.50.

11-12
Weekend to Missouri Prairies
Saturday and Sunday, meet 8 a.m. at Ridgway Center. Join naturalist James P. Jackson and prairie biologist Tom Toney for a weekend trip to notable prairie tracts in southwest Missouri. Includes transportation, overnight accommodations and some meals. Members $128, non-members $154.

12
Chamber Chorus
Sunday, 3 p.m., Shoenberg Auditorium, Ridgway Center. A Celebration of the Seasons, with the music of Wilbye, Janequin, Schubert, Brahms, Bizet, Delius, Hindemith, and Benjamin Britten. Tickets $5 at the door. Call 721-7212 for information.

12
Wilderness Wagon Ride
Sunday, 12:30, 1:30, 2:30, 3:30 p.m., Arboretum. Every Sunday in May the Wilderness Wagon will provide narrated tours to the Trail House and back. Round trip charge is $1 for adults, 50- for children and senior citizens. Half price, one-way tickets are available.

13
Fundamentals of Home Gardening V
Monday, 7–9 p.m, Garden Room, Ridgway Center. Fifth in a series of six sessions.

14
Spring Wildflower Walk
Tuesday, 9:30 a.m.–1:30 p.m., Arboretum. Join three expert wildflower naturalists from the Webster Groves Nature Study Society on an educational, informal walk through the excellent trail system of the Arboretum. Dress comfortably and appropriately. Walk will not be cancelled because of weather. Bring a bag lunch. No reservations necessary.

16
The Garden in Watercolors IV
Thursday, 9 a.m. to noon, Beaumont etc. Fourth in a series of six sessions.

18, 19
Horticulture Society
Saturday, 12 p.m. to 5 p.m. and Sunday, 9 a.m. to 5 p.m., Orthwein Floral Hall, Ridgway Center. What is required to produce a prize winning specimen plant? Come see the best judged and displayed.

18
Basket Making
Saturday, 10 a.m.–4 p.m., Arboretum. Learn basket weaving from floral designer Elaine Taylor. Bring lunch, pruning shears and a sponge. Members $19, non-members $23.

18
Idea Gardens
Saturday, 9 a.m. to 2 p.m. Meet at Ridgway Center ticket counter. Russ Haviland, ecologist and gardener will lead a tour of home gardens in St. Louis. Bring your money for a lunch stop. Rain date is June 1. Members $12, non-members $14.50.

18
Interpretive Walk of Cahokia Mounds
Saturday, 9:30 a.m. to 2:30 p.m. Meet at Ridgway Center ticket counter. Joana Turner, naturalist, Arthur Christ, botanist, and William Iseminger, site interpreter will lead a five-mile interpretive walk through these important prehistoric Indian sites. Bring lunch and a knapsack. Adults: Member $11, non-member $13. Children: Member $10, non-member $12.

19
Wilderness Wagon Ride
Sunday, 12:30, 1:30, 2:30, 3:30 p.m., Arboretum. See May 12.

20
Fundamentals of Home Gardening VI
Monday 7–9 p.m., Garden Room, Ridgway Center. Last of a series.

21
Spring Wildflower Walk
Tuesday, 9:30 a.m.–1:30 p.m., Arboretum. See May 14.

23
The Garden in Watercolors V
Thursday, 9 a.m. to noon, Beaumont Room, Ridgway Center. Fifth in a series of six sessions.

25, 26
Rose Society
Saturday, and Sunday, 12 p.m. to 5 p.m., Orthwein Floral Hall, Ridgway Center. See the finest prize rose varieties judged and shown.

26
Wilderness Wagon Ride
Sunday, 12:30, 1:30, 2:30, 3:30 p.m., Arboretum. See May 12.

(continued on next page)

MAY-JUNE

HIGHLIGHTS

MAY 9-12 *Thursday-Sunday*

Herb Plant Sale

Fill your windowsill or your entire yard with aromatic and decorative herbs and perennials. There will be thousands of plants to choose from and Members Only can purchase on Thursday and Friday. Remember that Members receive a full 20% discount all four days. 9 a.m. to 5 p.m., Orthwein Floral Hall, Ridgway Center.

MAY 30 *Thursday*

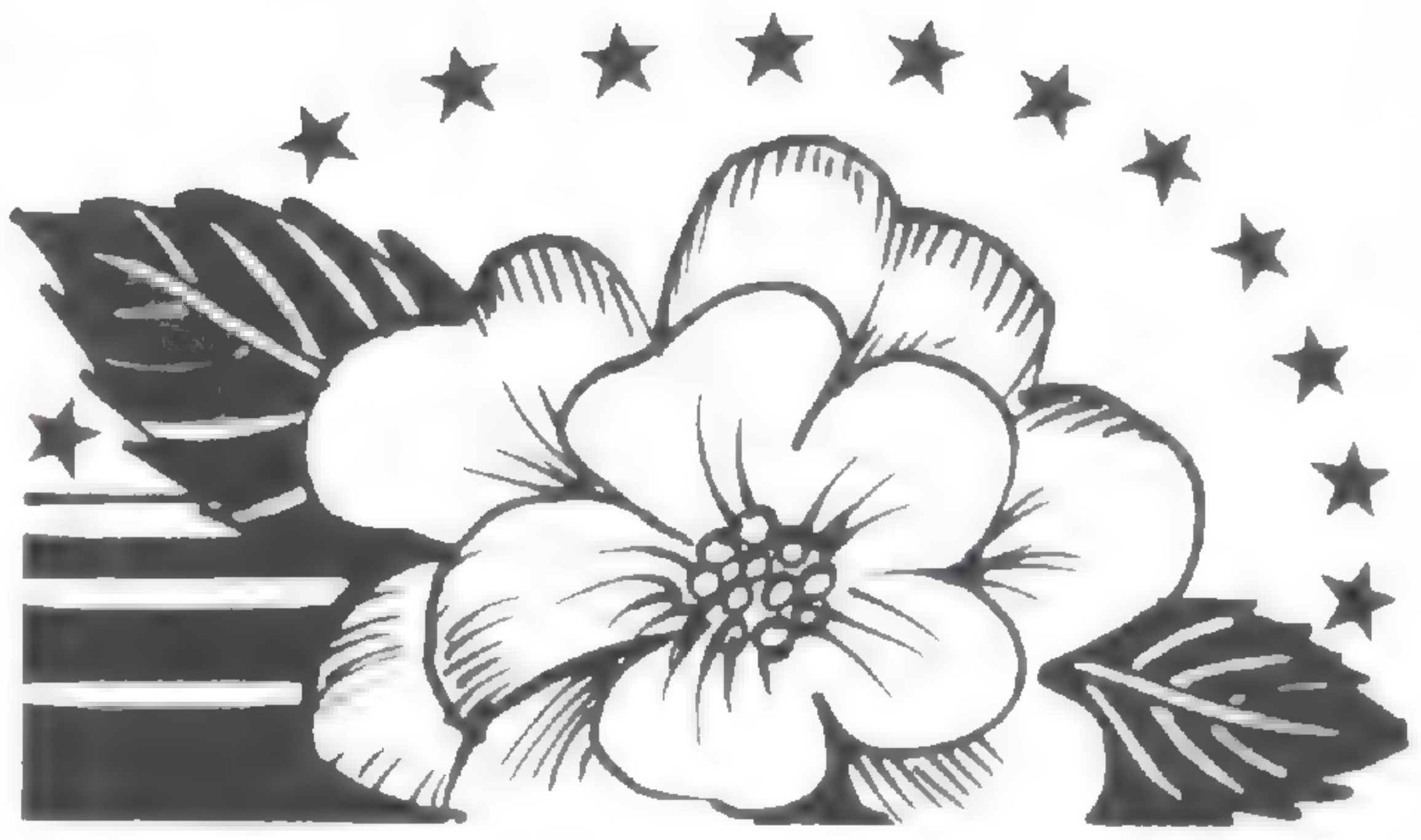
Purple Martin Evening

Join Ashley Gray, honorary curator of Purple Martins, for a movie, slide/lecture presentation, and a special wine and cheese reception to welcome the Purple Martins back to the Garden. Regular Garden admission. Call 577-5125 for information. 6:30 p.m., Shoenberg Auditorium, Ridgway Center.

JUNE 8 *Saturday*

Iris Society Show

The "queen of the garden" will be judged and displayed. Free and open to the public. 12 p.m. to 5 p.m., Orthwein Floral Hall, Ridgway Center.



JUNE 7 *Friday*

Members Rose Evening

Enjoy the first roses of summer during their peak blooming time. There will be strolling musicians and wine in the Gardens. Box suppers will be available by reservation. 4 to 8 p.m., Gladney and Lehmann Rose Gardens.

JUNE 15-23 *Saturday through the following Sunday*

Japanese Festival

Activity times vary by day. A full nine days of authentic entertainment, displays, films, tours, exhibits, food and more. Additional charge for some activities. *(See pages 3 and 4.)*

MAY

(continued)

27 **MEMORIAL DAY**

The Garden begins extended summer hours today. Daily hours are now 9 a.m. to 8 p.m. Take advantage of the new times with a delightful evening stroll.

28 **Spring Wildflower Walk**

Tuesday, 9:30 a.m.–1:30 p.m., Arboretum. See May 14.

30 **The Garden in Watercolors VI**

Thursday, 9 a.m. to noon, Beaumont Room, Ridgway Center. Last of a series.

30 **Purple Martin Evening**

Thursday, 6:30 p.m. (*See Highlights*)

JUNE

1 **Family Farm Trip**

Saturday, 9 a.m. to 2 p.m. Meet at the Ridgway Center. Visit the Schaefer Family, Diversified Farms, Inc. to see first hand how modern day agriculture operates. Bring a bag lunch for a picnic in a nearby town. Adults $13, non-member $15.50.

4 **Rose Care: Summer Care**

Tuesday, 10 a.m. to noon, Beaumont Room and rose gardens. Learn about summer care for your rose garden from Rosarian Monica Colombo. Includes insect, disease, and weed control, mulching and watering. Members $9, non-members $11.

7 **Night Hike**

Friday, 8–10:30 p.m., Arboretum. Enjoy stargazing and a walk in the moonlight. The first of four individual Friday walks. Meet at the Arboretum Visitor Center. Each session is $4.50 for Members, $5.50 for non-members.

7 **Members' Rose Evening**

Friday, 4 p.m. to 8 p.m. (*See Highlights*)

8 **The Nature of Insects**

Saturday, 9 a.m. to 3 p.m., Arboretum. Spend the morning learning little known facts about this fascinating group of creatures. After lunch you'll study insects in the plant communities of the Arboretum. Taught by J. Marshall Magner, registered professional entomologist. Members $6, non-members $7.

8 **Purple Martin Bus Trip**

Saturday, 10 a.m. to 5 p.m. Join Ashley Gray for a trip to the "Purple Martin Capital of the World"—Griggsville, Illinois. $15.00 per person includes box lunch. Reservations required by June 3. Call 577-5125 for information.

8 **Iris Society Show**

Saturday, 12 p.m. to 8 p.m., Orthwein Floral Hall, Ridgway Center. (*See Highlights*)

15 **Trees of the Arboretum**

Saturday, 10 a.m.–4 p.m., Arboretum. Bill Davit, staff naturalist, will lead visitors on a 3 mile tour of the Arboretum emphasizing the native trees of Missouri. A tree key will be provided. Bring a lunch. Members $6, non-members $7.

15–23 **Japanese Festival**

Saturday through the following Sunday (*See Highlights*)

17 **Members' Japanese Festival Day**

Monday, 10 a.m. to 8 p.m. A day when special demonstrations and workshops are available only to our Members. All require pre-registration and have limited space. (*See page 3.*)

Winter Photography Contest

SANDIE WORTHAM
First Prize,
Senior Color Division

The entries for this year's winter contest were the finest ever with terrific creativity and presentation in each photograph considered. Judges for this contest certainly had their hands full when choosing the winners.

Sandie Wortham of Florissant won first place in the senior color division for her elegant photograph of a camelia in bloom during January. Kathryn Zeigler of Kirkwood won first place in the junior color division for her photograph reflecting the Climatron's geodesic dome. Matthew A. Miller of Webster Groves won first place in the senior black and white division for his image of a Victorian scene on the Garden grounds, and Jacquelyn Griffin of west St. Louis County won first place in the junior black and white division for her photograph of a winter tree reflected on ice.

Judging the entries were Kris Peterson, photojournalist and editor at the St. Louis News Service; Jack Jennings, a McDonnell Douglas executive and photographer for the Garden's acclaimed annual calendar; and Ron Yaros, photo enthusiast and weather anchor for KTVI-TV.

MATTHEW A. MILLER
First Prize,
Senior Black & White Division

KATHRYN ZEIGLER / *First Prize, Junior Color Division*

JACQUELINE GRIFFIN / *First Prize, Junior Black & White Division*

1•9•8•5 WINNERS

SENIOR—COLOR

Sandie Wortham
Florissant, MO

HONORABLE MENTION

Roger Getrost
St. Louis, MO
Christopher Tichacek
Eureka, MO
Gordon Casanova
Arnold, MO
Lauri Granger
Syracuse, NY
Susan Thayer Belson
St. Louis, MO

JUNIOR—COLOR

Kathryn Zeigler
St. Louis, MO

HONORABLE MENTION

Gene Rankey
Kirkwood, MO
Tanya Stables
Ellisville, MO
Jennifer Noonan
Fairview Heights, IL
Randy Wettach
Chesterfield, MO
Robin Wettach
Chesterfield, MO

SENIOR—BLACK & WHITE

Matthew A. Miller
Webster Groves, MO

HONORABLE MENTION

Cathy Chin
St. Louis, MO
T. Ann Tolin
St. Louis, MO
James E. Stallinger
Maryland Heights, MO
Natalie Grant
St. Louis, MO
Margaret Doyle
Belleville, IL

JUNIOR—BLACK & WHITE

Jacquelyn Griffin
St. Louis, MO

HONORABLE MENTION

Holly Beth Mueller
Creve Coeur, MO
Scott Kurz
St. Louis, MO
Jim Doll (2)
Kirkwood, MO
Tom Becker
Ballwin, MO

FROM THE MEMBERSHIP OFFICE

New Membership Services Desk

The Membership Services and Information Committee has a sleek new desk to call their own. The Committee provides information and other services to Members visiting the Garden. One of their most important functions is promoting membership to Garden visitors. In 1984 alone, the Committee brought 730 new Members to the Garden. The new service desk is portable and can be stationed in various places in Grigg Hall at the Ridgway Center. Sue Oertli, left, has been the Committee's chairperson for the past year. Mim Kittner, also pictured, will serve as chairperson for the coming year.

Upcoming Members' Events

May and June are busy months for Members' activities at the Garden. The Members' Preview of the annual Herb Plant Sale will be held on Thursday and Friday, May 9th and 10th, from 9:00 a.m. to 6:30 p.m.

No less than four Members' Days will be held during May and June. Members' Days are highlighted by special benefits for Members only. These benefits include free tram rides, an additional 5% discount on plant purchases, a special sale item at the Garden Gate Shop and a Members' special at the Gardenview Restaurant. Members will receive a new Members' sticker at the front desk to distinguish them from other visitors on these days.

Upcoming Members' Days

May 30	Purple Martin Evening
June 7	Rose Evening
June 8	Purple Martin Bus Tour to Griggsville, Ill.
June 17	Members' Day at Japanese Festival

Garden Guides Offer Sunday Tours

On March 1, the Garden Guides marked the first anniversary of their Sunday public tours. At 2:00 p.m. every Sunday a volunteer Garden Guide has taken Garden visitors on a 45-minute tour of a part of the Garden most interesting on that day—it might be roses in September, the Japanese Garden in its fall splendor, the orchid show in February, or the Climatron on a bleak winter day.

During this first year, nearly 1,000 visitors have taken these informal walking tours. A friendly mixture of young and old, St. Louisans and travelers, they are among our most responsive and interested visitors.

Join us any Sunday at 2:00 p.m. and let a Garden Guide add to your enjoyment as you see and learn more about your Missouri Botanical Garden.

GIVE THE GARDEN!

A gift membership to the Garden is a pleasure to give or receive any time of the year. For Mother's Day or Father's Day, for a garden enthusiast, a bird watcher, a Sunday stroller, a nature lover, the person who has everything, or just someone who deserves a delightful escape—a Garden membership is the perfect gift. By giving the Garden, you may just introduce someone to a lifelong friend!

Missouri • Botanical • Garden

A new Missouri Botanical Garden Apron will be given to all new and renewing Members. This attractive canvas apron has a fresh new design depicting the Ridgway Center with a water lily in the foreground. The apron, with its two roomy pockets, is suitable for gardening, cooking, or your favorite hobby. This special new gift is available only to Members who renew their current membership, or to new Members of the Garden; it is not available for sale.

Important Membership Survey

A random selection of Garden Members have already received a Membership Survey. If you are one of these Members, please complete and return the survey today. This survey is vital to the Membership Program. Not only will this survey help us better serve the present Members, it will also be of great assistance in expanding the Garden's roster of loyal Members.

Nora Stern: The Garden's Newest Trustee

The newest member to the Missouri Botanical Garden's Board of Trustees is no newcomer to the Garden. Nora (Mrs. Walter G.) Stern has played a very active role in Garden programs for more than 20 years.

Mrs. Stern began her "career" at the Garden in 1965 when she was elected to serve on the board of the Friends of the Garden and worked as a hostess during Members' preview parties. She credits her mother's love for the Garden as a major factor in becoming involved with the Missouri Botanical Garden.

In 1969, she was elected president of the Members' Board and served in that capacity until 1972. "When I was elected president, the Garden was quite different than it is today," she said "We only had about 2,500 members and we did almost everything through personal contact."

She was elected again as president of the Members' Board in 1976 and served as chairman of the Chrysanthemum Ball, one of the largest single fund raising events ever held at the Garden, and has been active in fund raising activities ever since. She headed the Members' Board again in 1977, 1978, 1983 and 1984.

Reflecting back on the changes which have occurred during her years at the Garden, Mrs. Stern said, "By far the biggest changes have been the tremendous increase in our membership and the receipt of public support. Nevertheless we have strived to maintain a personal touch."

Mrs. Stern said she hoped her appointment to the Board of Trustees will enable her to see the Garden from a different perspective and become more involved in the long range plans for the Garden.

IN MEMORIAM: *Erna Sarah Rice Eisendrath*

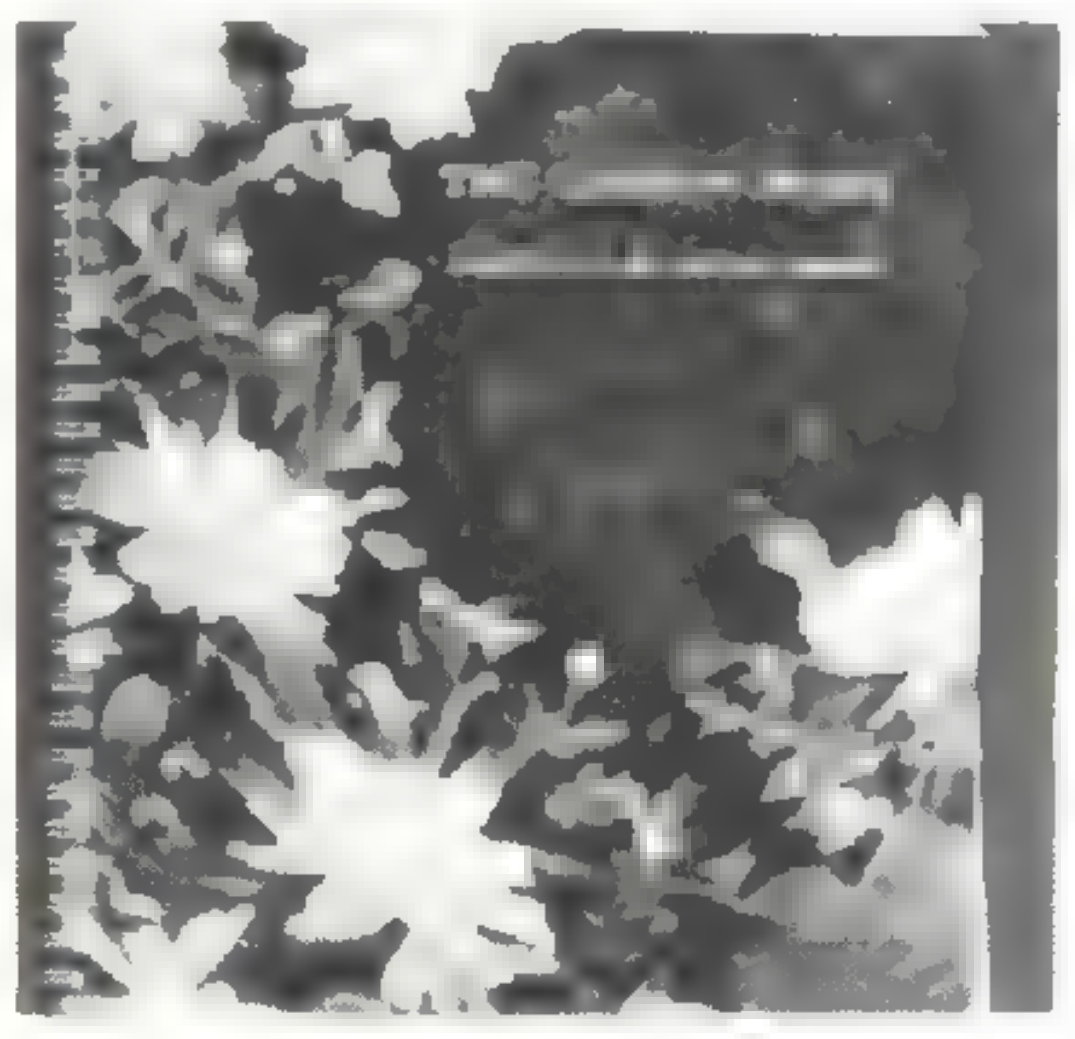
Garden Members and staff were saddened to learn of the death, on March 23, of Erna Sarah Rice Eisendrath at age 75.

Mrs. Eisendrath was an associate professor emeritus of biology at Washington University and a research associate at the Garden. She was a tremendous influence on the development of the appreciation of natural history and a real friend of the Garden. Her book, "Missouri Wildflowers of the St. Louis Area", has been very popular since its publication in 1978.

She was a strong supporter of many nature groups, including the Nature Conservancy, Missouri Native Plant Society and the Friends of Tyson. She also was active in the Garden's summer program at the Nature Place in Colorado.

She has willed her extensive collection of books on botany to the Garden. Mrs. Eisendrath is survived by two daughters, a son, a brother and eight grandchildren.

Book Review/*Help for St. Louis Gardeners*



The Garden Club of St. Louis, in conjunction with the Missouri Botanical Garden, has published "The Garden Diary, monthly care for Midwest gardens" designed specifically to benefit gardeners in Missouri and surrounding states.

Included in The Garden Diary are month-by-month tips for gardeners with ample space for notes. The 96-page book applies common names of plants and includes Latin names where there might be a question. There are special sections and illustrations on soil and fertilizers, pesticides and herbicides, lawn care, perennials, annuals, wildflowers, herbs, fruits, vegetables, trees, shrubs and roses.

The Garden Diary, a two-and-a-half year project, also lists local and mail order resources with suggestions for other books recommended to help midwestern gardeners. The book was edited by Patricia R. Bush and illustrated by Frances T. Martin. The Garden Diary is available for $12.95 at the Garden Gate Shop of the Missouri Botanical Garden.

GARDEN GATE SHOP

Mother's Day

As a special salute to Mother's Day, we are delighted to introduce the *Redouté Roses* note paper. These charming notes and envelopes were designed for the Garden and are perfect for all mothers, grandmothers, aunts, friends, etc. We are also thrilled with the new Garden Diary. It's a perfect gift for every gardener with tips for each month—both the flower and vegetable gardener. Our other Mother's Day features include scented pillows, potpourri and soaps, and darling porcelain figurines. As always, Gift Certificates are available.

Roses

June is a big month for the Shop. The Shop is open from 9 a.m. until 8 p.m. all summer. We will support Rose Evening, June 7, with roses, roses, roses! We have cut roses, miniature roses and rose bushes—both florabunda and hybrid teas. We will feature the Henry Shaw porcelain rose by the Boehm Studios as well as rose vases of many sizes.

Japanese Festival

We are also prepared for the Japanese Festival, June 15-23. We are stocking bonsai plants and accessories, Japanese lanterns, fabulous kites and windsocks, silk and paper fans and parasols. In response to the many requests last year, we have an exciting selection of oriental paper lanterns. Japanese iron works, ceramic figures, origami paper and a vast array of Japanese gardening books complete the selection. Please stop by on your way to the Garden.

1985 Spring Herb Sale

Visit the Orthwein Floral Hall for the Members' Pre-Sale, Thursday and Friday, May 9 and 10, 9:00 a.m. to 6:00 p.m. The sale is open to the public on Saturday and Sunday, May 11 and 12, 9:00 a.m. to 6:00 p.m. Members save 20% on all four days. There will be thousands of herbs and perennials for your aromatic and decorative gardening. Mother's Day falls on the last day of our Herb Sale. Free cut daisy to each mother visiting the Garden Gate Shop.

For Younger Members

To Plant A Garden

Have you ever grown a vegetable garden? If not, now is the perfect time to grow some things that will be fun to plant, easy to care for, and delicious to eat. There are several things you will need to think about in planning your garden. First, how soon do you want to eat the vegetables you will grow? How much time can you spend growing them? Where should your garden be located? How will you decide which vegetables to plant?

Some vegetables grow more quickly than others. For example, garden lettuce will mature (be ready to harvest and eat) about 40 days after the lettuce seeds are planted. Pumpkins, however, will not mature until 120 days after the seeds are planted. Each kind of vegetable matures at its own rate. The number of days to maturity or harvest are printed on each seed package to help you plan your garden. Instructions on each package also include how much space a vegetable needs to grow so that you will know how big or small to make your garden.

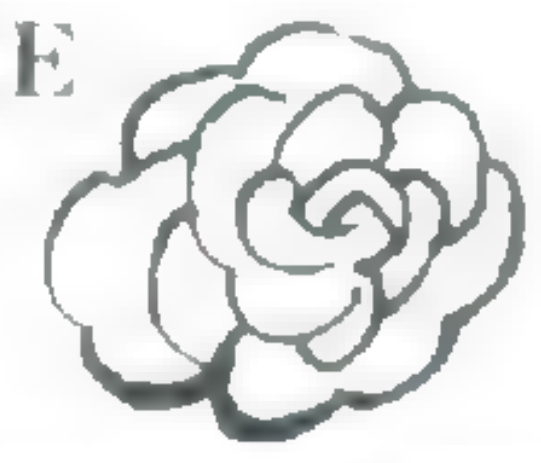
Almost all vegetables need direct sun at least some time during the day. Some vegetables need more sun that others. It is important to know how much sun your vegetables will need so you can select the right location in which to grow them.

Below is a chart that will help you decide which vegetables you would like to plant.

VEGETABLES	Days to Maturity	Full Sun (8 hours)	Partial Sun (6 hours)	Some Shade (4 hours sun)	Shady
CARROTS	65-70 days		X	X	X
CUCUMBERS	55-65 days	X	X		
LETTUCE	40 days		X	X	
ONIONS	95 days		X	X	
RADISHES	21 days	X	X	X	X
SPINACH	45-50 days		X	X	
TOMATOES	65-85 days (from transplats rather than seeds)	X			
ZUCCHINI SQUASH	47 days	X	X		

Any of the vegetables listed above would be delicious in a salad. To plant a small salad garden of your own, follow the directions given in the Project on this page.

GARDEN JOURNAL

Vegetable	Date Planted	Days to Maturity	Harvest Date
CARROT			
RADISH			
ZUCCHINI			
LETTUCE 			
ETC.			

PROJECT:

A Salad Garden

Planting your own salad garden is both fun and rewarding. Two or three kinds of vegetables can be planted in a space as small as one foot square. Several more vegetables can be planted in a larger area. Use the chart (left, top) to help you decide which vegetables to plant.

You will need: packages of vegetable seeds (such as lettuce, radishes or others); shovel; string; sticks, such as popsicle sticks; scissors; watering can or hose.

What to do: Use the shovel to dig an area only as large as you want your garden to be. Turn over the soil in the garden area and break up large clumps of dirt. Smooth the surface of the soil.

Use two sticks and a piece of string to mark each row of seeds that you will plant. Place one stick into the ground at one end of a row. Tie a piece of string to it. Then, pull the string to the other end of the row, keeping the string as straight as you can. Tie the second end of the string to a second stick and push that stick into the ground. Cut the string and prepare two more sticks in the same way for the next row of seeds. Do this for each row you wish to plant.

Read your seed packages carefully to find out how far apart and how deep to plant each seed. Use your finger to poke holes in the soil for each seed. Make sure the holes are under the strings you connected to the sticks. Place a seed into each hole and cover it with soil. Place only one kind of seed in each row. Then, fasten the empty seed package to one of the sticks at the end of the row.

Fill a watering can or use a gentle spray from a hose to water the soil where you planted your seeds. Check the soil each day to see if it feels damp; do not let the soil dry out. Be careful not to give the seeds too much water. You'll know the soil is too wet, if small puddles of water do not disappear quickly.

Copy the record chart (at left) on a large piece of paper. Use it to help you keep a record of the growth of your vegetables. When each vegetable has matured, you'll be ready for a harvest. Treat your family or friends to a small salad feast!

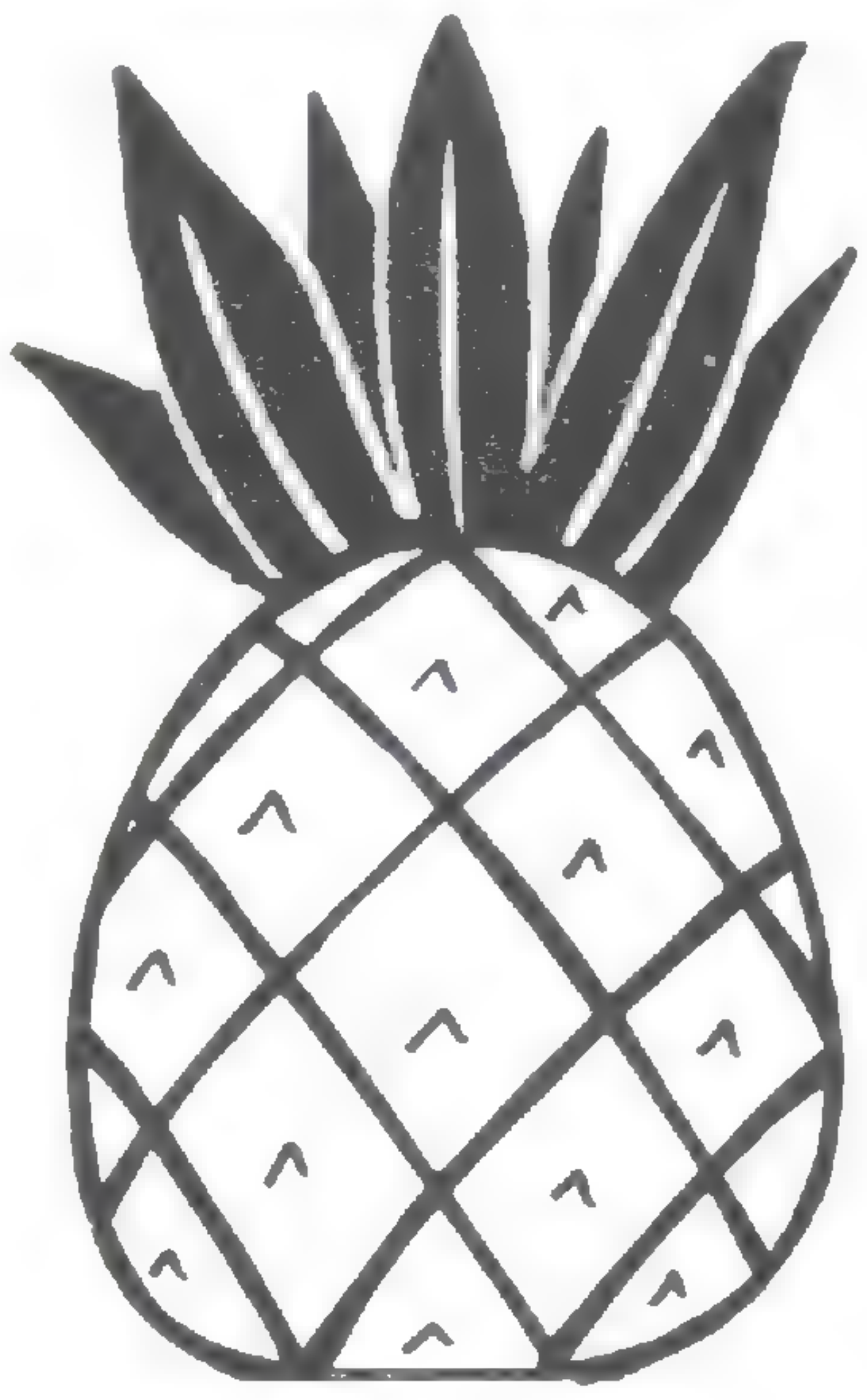
Plant Talk From The Gardenview Restaurant

FOOD FACTS:

Pineapple is a popular sub-tropical and tropical fruit and a terrestrial member of the Bromeliad family (Bromeliaceae). This plant family is comprised of about 1,500 species, most of which are epiphytes, such as "Spanish moss." Pineapple is native to South America and is widely cultivated in the tropics.

The pineapple matures in about 5-6 months and is not a single fruit, but a multiple fruit of berries grown together in a pulpy mass from a spike of blossoms. It grows singly from rosettes of very spiny leaves, and the "crown" from the top of the fruit can be planted and grown as a house plant. The accumulated starch in the fruit is converted to sugar, providing the sweet taste, and it contains citric and malic acids as well as vitamins A and B.

Kid's Tip—The juice of the pineapple closely resembles human gastric juices in composition and contains the protein digestive enzyme "bromelin," which acts as a tenderizer. People in the tropics use chunks of pineapple over meat to tenderize it and make it easier to chew. The presence of bromelin is the reason fresh or frozen pineapple cannot be used in gelatin (a protein substance) salads or desserts: the bromelin digest the gelatin, and the salad or dessert will not gel.



Pineapple
(Ananas comosus)

FOOD FUN DAYS:

Japanese Festival

During the Japanese Festival this June, we will be providing food with a Japanese theme under the tent near the Japanese Garden. On Saturdays and Sundays, June 15, 16, 22 and 23, from 11 a.m. to 11 p.m., we will be serving Japanese specialty foods.

Also during the Japanese Festival, the Gardenview Restaurant will be open until 8 p.m. daily.

Snack Shop

A new snack shop, located at the Flora Gate, will be opened Memorial Day weekend serving beverages, hot dogs, and ice cream from 11 a.m. to 8 p.m. daily until Labor Day.

Sunday Brunch

Sunday Brunch has returned to the Gardenview Restaurant from 10:30 a.m. to 2:30 p.m. Call Ces and Judy in the Gardenview Restaurant at 577-5196 for details.

FOOD TIPS:

From Ces and Judy—

Polynesian Chicken Salad in Fresh Pineapple Boat

4 whole breasts of chicken
2 fresh pineapples
coconut cream
toasted coconut
mayonnaise
diced celery

Poach chicken 18-20 minutes until cooked through but not dry. Cool, remove bones and skin. Cut into chunks ½ inch thick.

Add 2 stalks celery, finely diced. Add 2 tablespoons coconut cream and salt and pepper to taste.

Split pineapples in half. Remove pineapple and cut meat into uniform chunks, making sure to remove the hard center core. Also be sure to leave pineapple shell and leaves intact.

Add pineapple chunks to chicken. Stir in 2 tablespoons coconut cream. Add enough mayonnaise to bind. Correct for salt and pepper.

Mound chicken salad in pineapple shell attractively. Sprinkle salad with coconut that has been toasted and sweetened with powdered sugar.

Garnish with fresh strawberries. Serve with fresh croissant or sourdough roll and sweet butter.

Serves 4.

Visit the New Gardenview Restaurant

The Gardenview Restaurant, located in the Ridgway Center, begins the new season with new management and many welcome changes. Cecily A. Hoffius and Judith L. Bellows took over operation of the restaurant and catering service in January and have been busy upgrading the physical and culinary aspects of the restaurant.

The most visible change visitors notice when entering the restaurant is the disappearance of table service and the end of long lines at the food counter. Both systems have been replaced with a new "scramble" system which groups foods by types allowing patrons to move quickly from station to station without waiting. The system consists of separate stations for hot entrees, cold entrees, rolls and desserts, beverages and a salad bar. Long waits during the peak season and on weekends should become of thing of the past.

In order to accommodate the new system and improve the catering function, more than $100,000 in capital expenditures have been made to the kitchen and dining areas, including a return to real china and silverware. The menu has been expanded and includes items to suit all palates and pocketbooks.

Other welcome changes include the return of the popular Sunday brunch and a soon to be opened snack bar in the old Flora Gate House. Drop by during your next visit to the Garden.

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Mrs. Forrest J. Murphy
Secretary
Mrs. W. Ashley Gray III
Treasurer

DIRECTOR
Peter H. Raven

PROGRAM EXPANDED

Twenty-three New Garden Guides Graduate

New Garden Guides, from left to right: Dawn Holmes, Sally Graves, Ruth Seris, Patricia Bushman, Robert Martin, Jean Caine-Benjamin, Ruth Muckler, William A. Clark.

Rebecca Cannon, Margery Reis, Jeanne Norberg, Sammy Ann Ruwitch, Linda Gwyn, Lois Friedman, Pat Eschbacher.

Happily clutching their diplomas, 23 new Garden Guides graduated from the Guide Training Program at the Garden on April 9, 1985.

Harriot (Mrs. H. Parker) Smith, Chairman of the Guide Training Program, conducted the ceremony at the monthly meeting of the 70 Garden Guides in the Ridgway Center. After nine weeks of lectures, tours, homework, quizzes and a final exam, the happy graduates faced immediate "trial by fire"—thousands and thousands of energetic youngsters visiting the Garden in April and May to learn about plants from all over the world.

An informal reception followed the ceremony and many of the graduates proudly donned the green vests and official MBG name tags, which mark them as docents. The newest Garden Guides are pictured above and at right.

Carol Donelan, Joey Holmes, Florence Hoey, Roberta Dearing, Peggy Abel, Catherine Vanderpearl, Carole Kramer, Janne Niemoeller.

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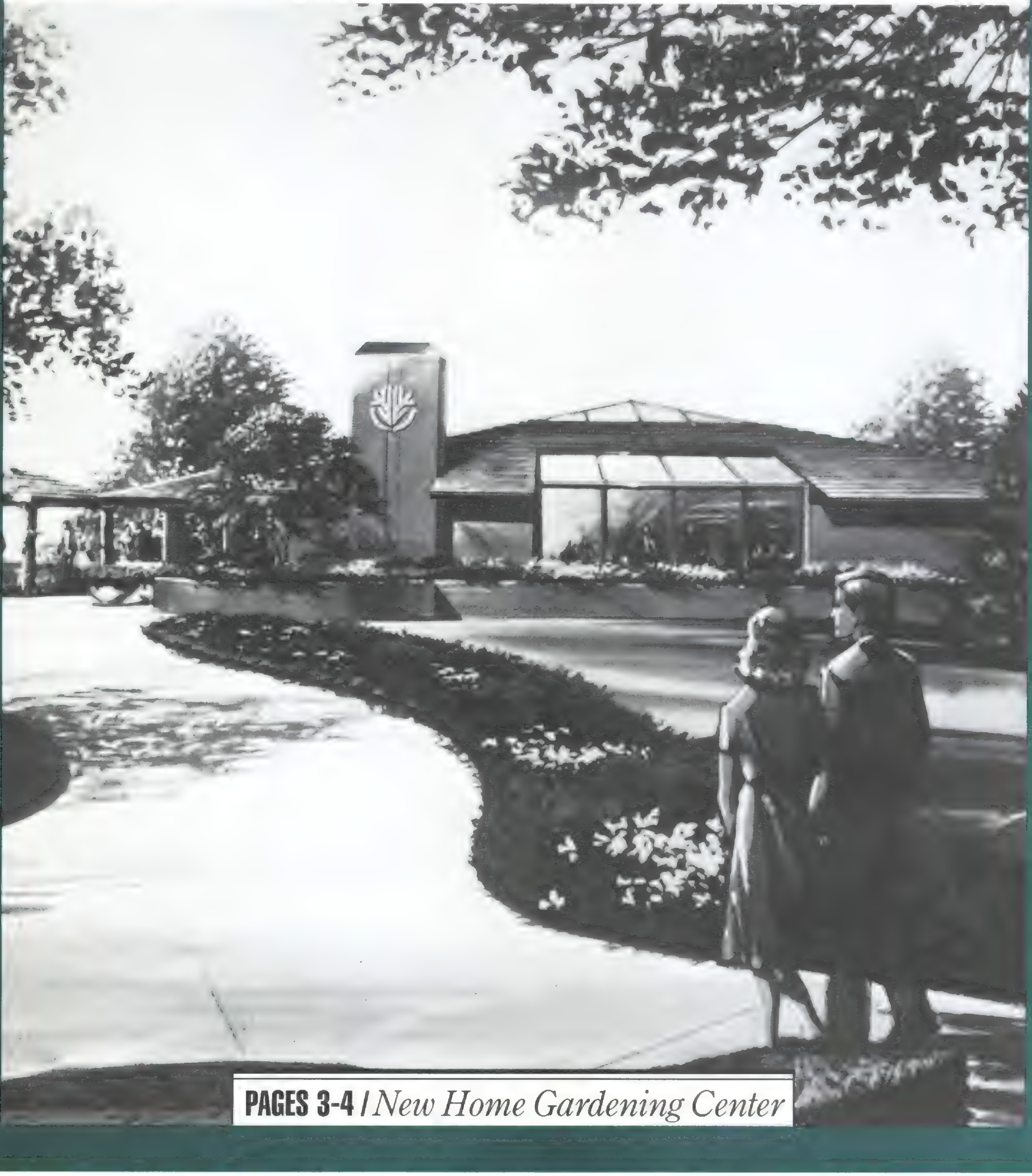
Missouri Botanical Garden

BULLETIN

VOLUME LXXIII, NUMBER 4 JULY-AUGUST 1985



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The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $35 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden shops and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

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Comment

Looking to the Future

Several exciting projects are in various stages of planning and development around the Garden. The Membership has generously responded to the challenge grant from the National Endowment for the Humanities by contributing more than $25,000 to date toward the renovation of the library and Lehmann Building. Also, at press time, the Missouri House and Senate have approved bills appropriating $300,000 for repairs and rehabilitation of the Climatron. If this legislation is passed and signed by the Governor this session, work should begin in the fall.

Looking to the future at the Garden has always been exciting and challenging. Our master plan, which was adopted by the Board of Trustees in 1973, has provided the blueprint for the work we have done since then. The last major project from that blueprint is the Home Gardening Center. The Home Gardening Center will provide us with many opportunities to serve our Members and the public better in the metropolitan area.

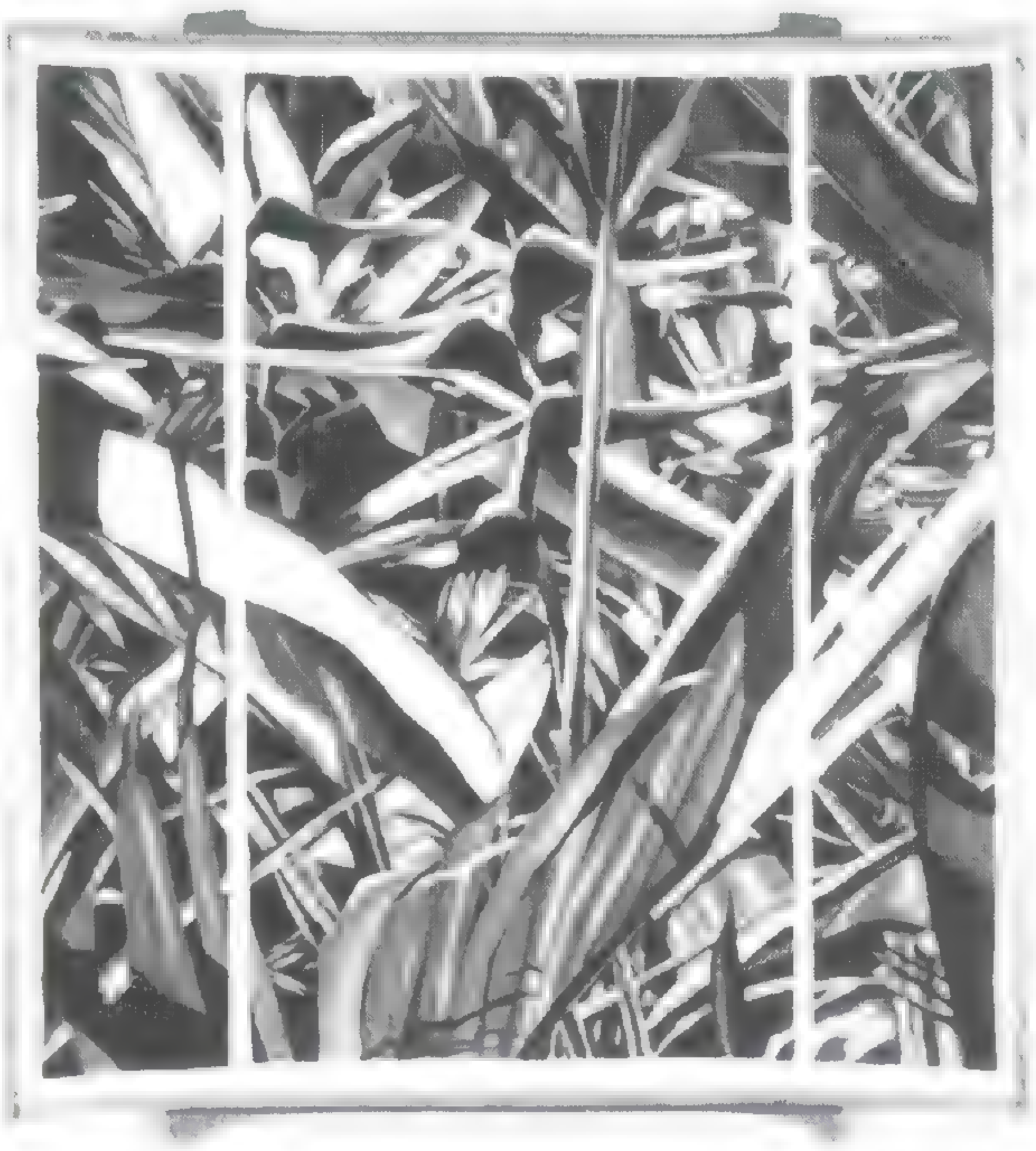
Gardening is the number one hobby in America today. With the acknowledgment by John Naisbett in *Megatrends* of our society being one of high-tech, high-touch, what better high-touch experience for leisure time than working with the soil and plants?

It is the Home Gardening Center which will encourage those who have not tried gardening to do so and provide information to those of us who are weekend gardeners so that our efforts may be more productive. It will also provide those who are really professional level amateurs with new techniques, new plants, and ideas for new ways to combine all those things that go into making gardens.

Above all, it will be a beautiful garden and demonstrate to all of us how our gardens can be aesthetically more pleasing and how we can get more pleasure from them.

While the actual construction and opening of the garden is several years in the future, the excitement and challenge of it all is already here and we are working to make it a reality.

Peter H. Raven



"Pajaros de Fortin," a generous donation by Mary and Louis Zorensky, will be displayed on the second floor of the Ridgway Center. The large, curved watercolor is the work of St. Louis artist Phyllis Plattner.

ARE YOU RECEIVING GARDEN MAILINGS?

Over the past several months, an increased number of Members have informed the Membership Office that they are not receiving notices of upcoming events and programs at the Garden or are receiving them after the date of the event.

The Garden staff has been in constant contact with postal authorities to try to remedy this perplexing problem but they need your help. If you have experienced late mail delivery or do not receive certain Garden mailings, please call the Membership Office at (314) 577-5118. Armed with specific information about addresses and delivery dates the Postal Service, hopefully, can do a better job of improving its service to Garden Members.

Home Gardening Center

Plans Unveiled

The Home Gardening Center, one of the most ambitious and requested projects ever undertaken by the Missouri Botanical Garden, is moving closer to becoming a reality. The purpose of the proposed Home Gardening Center is to "teach people how to get people excited about gardening." It will show no less than twenty-one distinct gardens and displays, and provide a Garden Center where visitors can learn through displays, classes and a library.

At an estimated cost of $4.5 million, the Home Gardening Center will be one of the most significant projects the Missouri Botanical Garden has ever undertaken. The approximately eight-acre garden is also expected to be one of the most popular features at the Garden, offering people ideas displayed on a residential scale that can be easily transported to their homes.

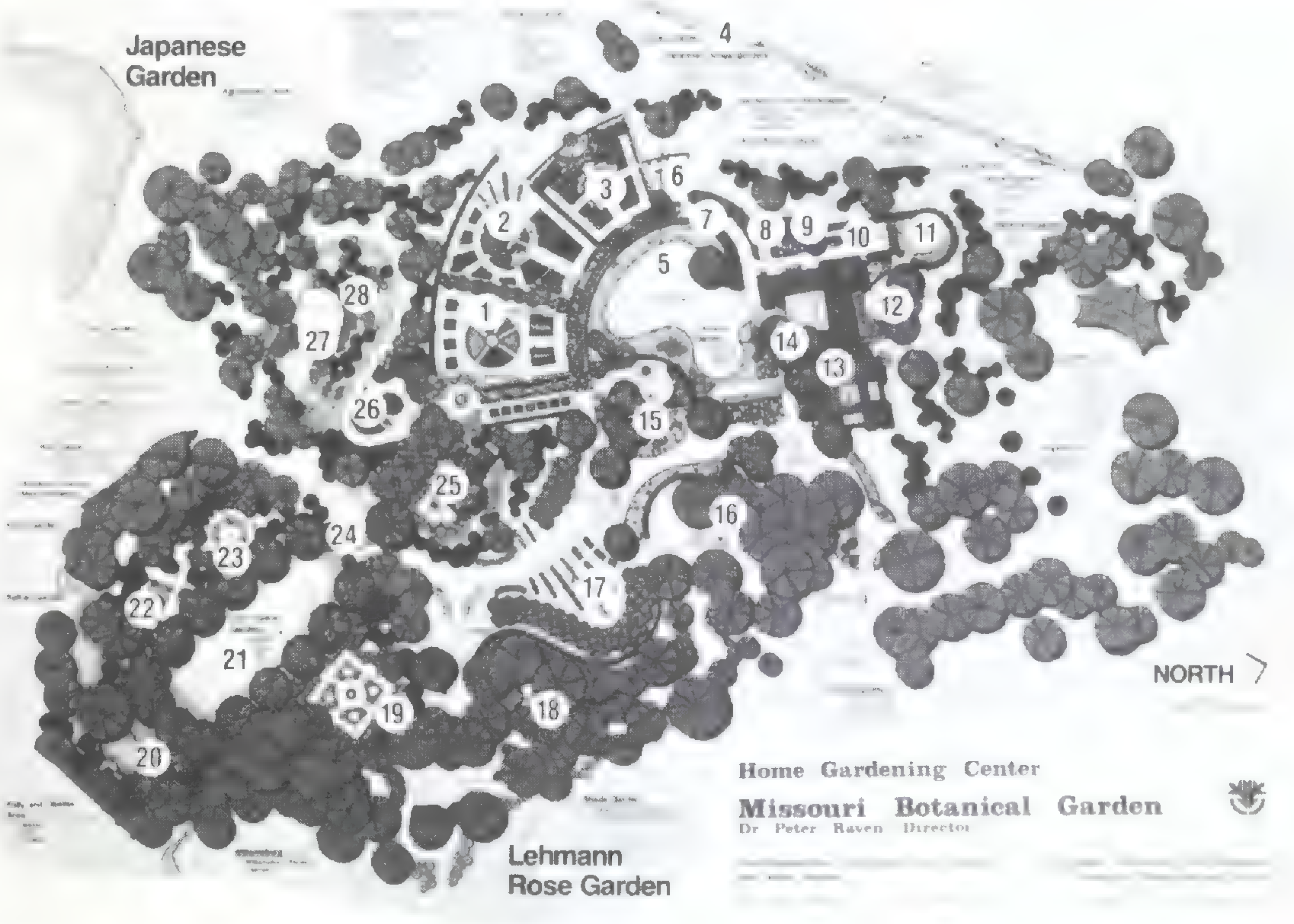
The proposed site of the Home Gardening Center lies between the Cohen Amphitheater and the Japanese Garden, in the southwest quarter of the Garden.

The entrance to the new garden will feature the Home Gardening Center building. Visitors will be able to enter the garden either through the building or by ramp. The 10,000 square-foot building will be especially designed to visually harmonize with natural surroundings. It will include glass areas with all four orientations, north, south, east and west, in order to show visitors how to use plants at home.

The Home Gardening Center will include an administrative area, library and information center on the entrance level. Half a level down will be the main display area, which will be 20 feet wide with a vaulted center. This level will also show a winter greenhouse. On the lower level will be a demonstration kitchen and classroom to accommodate about 50 persons and rest rooms which are accessible from outdoors. Plans for the building include an area for the Garden's popular Answer Service.

On the northwest side of the Home Gardening Center will be a backyard garden with a patio, and a "secret" garden designed for privacy. Immediately to the west will be a kitchen garden displaying crops for salads, cooking and herbs. Moving counter-clockwise around the Center is a city garden, and a work area displaying tools, compost bins, coldframes, and a lath house. There will be a display of groundcovers, a garden for the handicapped, and a stream garden.

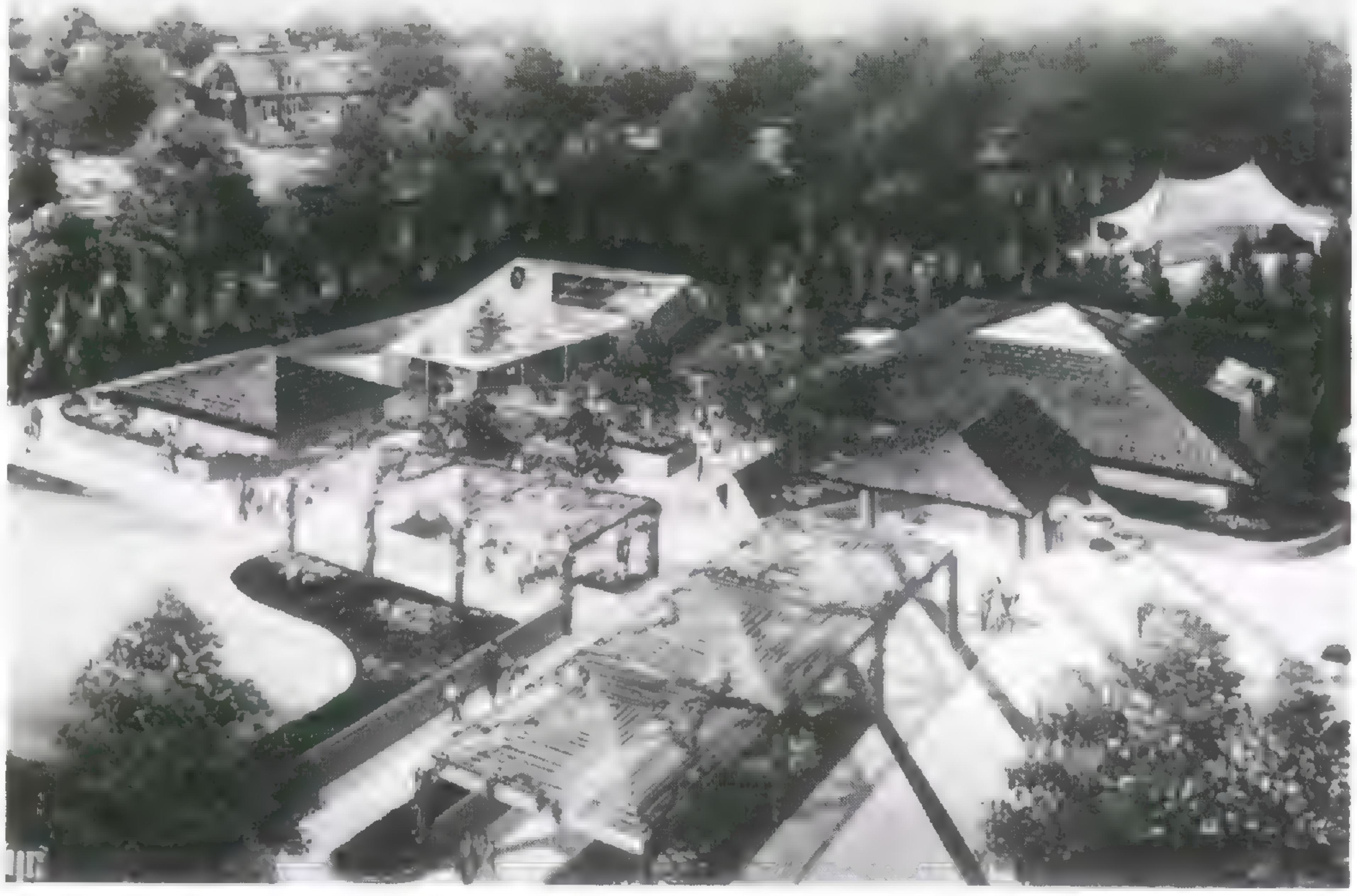
On the southeast side of the Home Gardening Center will be a terrace garden and a large



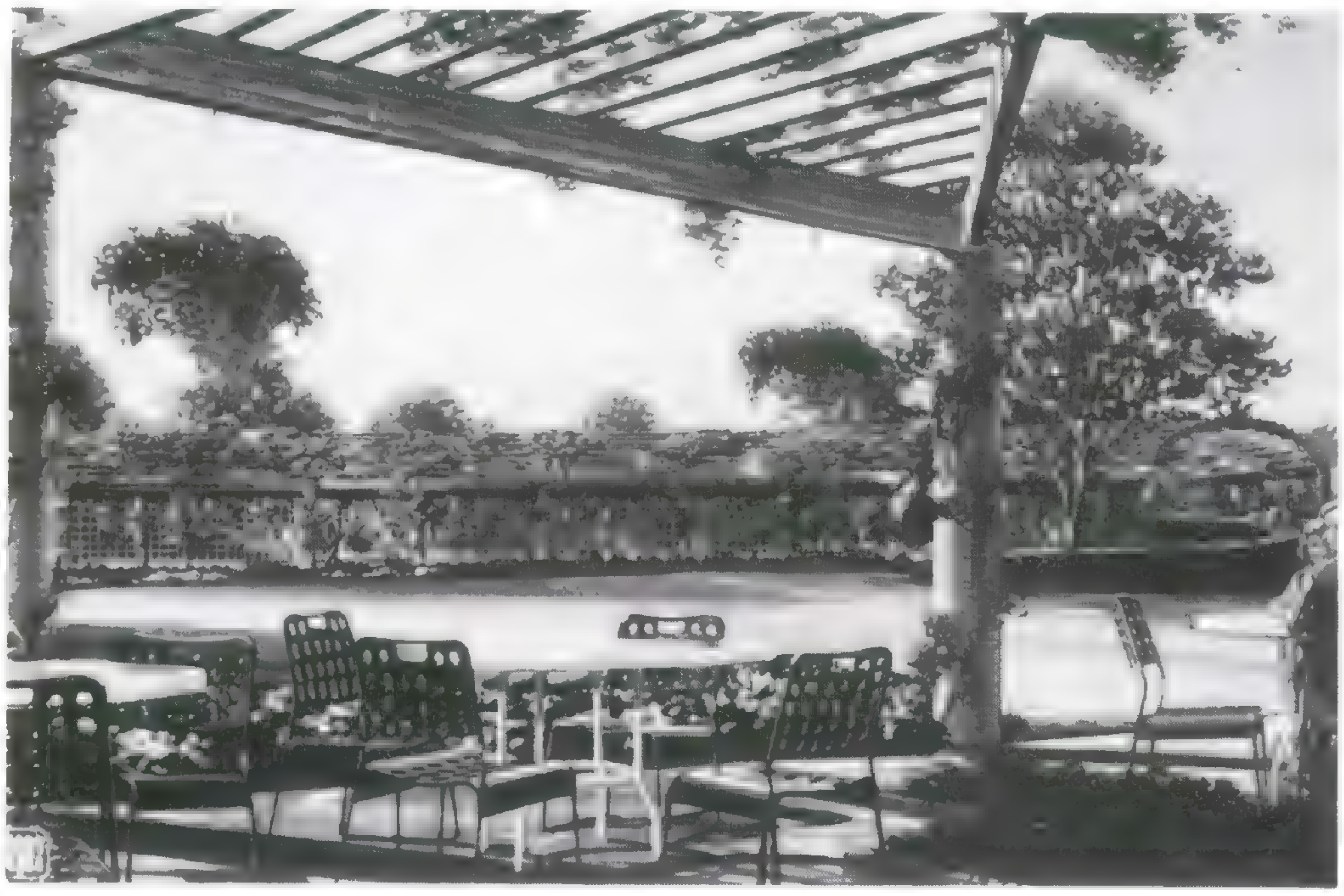
The Home Gardening Center will extend eight acres on the southwest quarter of the grounds. Each demonstration garden will provide multiple ideas for visitors to apply at home. Clockwise, from top left:

1. **Agronomic Display**
2. **Garden for a Family of Four**
3. **Intensive Garden**
4. **Stream Garden**
5. **Perennial/Annual Borders**
6. **Garden for the Handicapped**
7. **Groundcover Display**
8. **Work Area**
9. **City Garden**
10. **Kitchen Garden**
11. **Secret Garden**
12. **Backyard Garden**
13. **Garden Center**
14. **Terrace Garden**
15. **Ornamental Vegetables & Flower Gardens**
16. **Rotating Display**
17. **Fruit Garden**
18. **Shade Garden**
19. **Williamsburg Garden**
20. **Folly & Obelisk Area**
21. **Main Sunken Garden**
22. **Balkan Garden**
23. **Asian Garden**
24. **Boxwood Garden (Main Entrance)**
25. **Bird Garden**
26. **Prairie Garden**
27. **Butterfly Meadow**
28. **Ozark Garden**

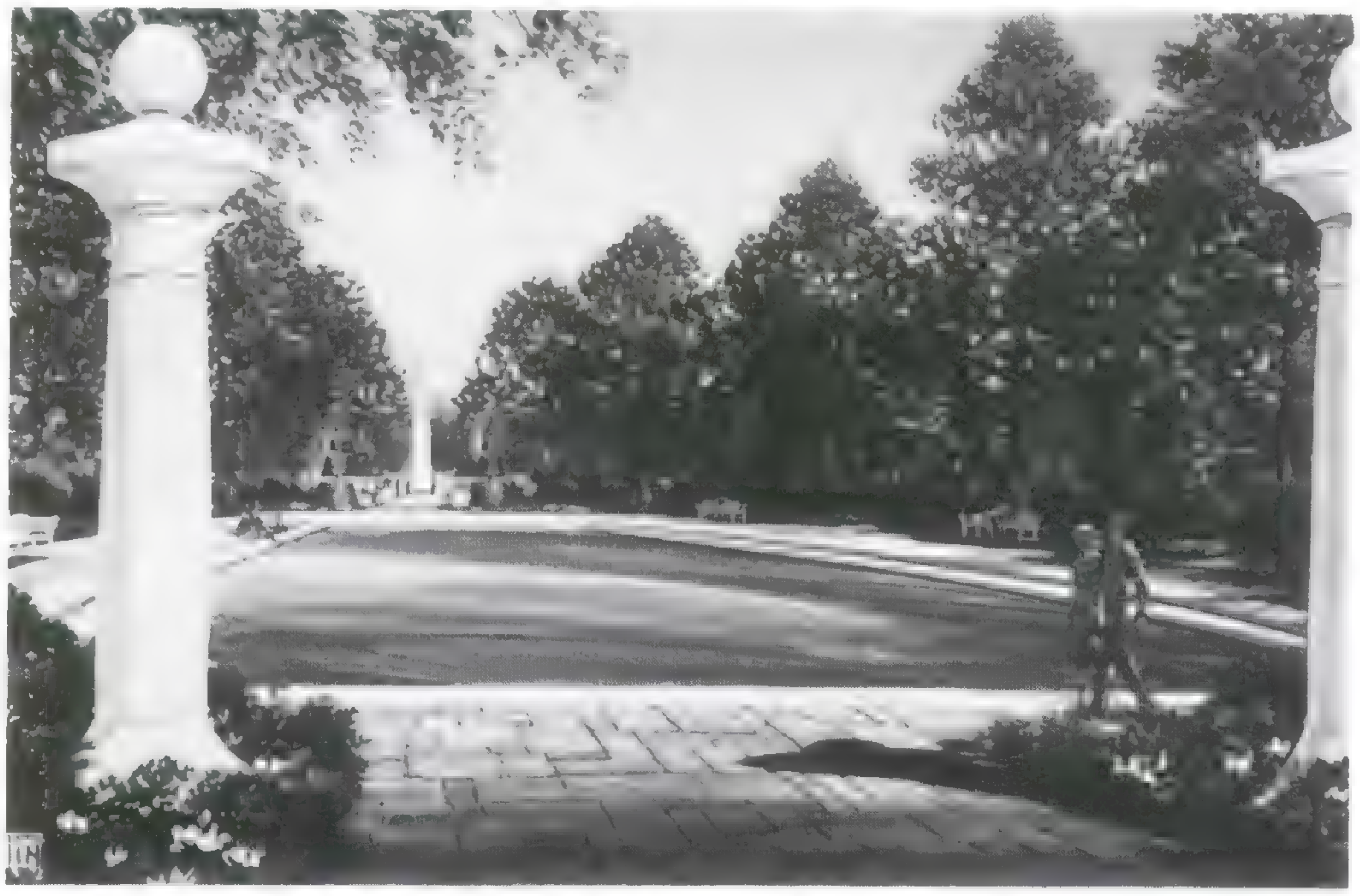
Home Gardening Center



The Home Gardening Center will include a 10,000 square foot residential style facility. The building will house an information center, library, demonstration kitchen, classroom, winter greenhouse and orientations for cultivating plants in various areas of the home. (This is an aerial view of the scene on the cover.)



The terrace garden in the Home Gardening Center will include seating for gardening classes and discussion. This area overlooks a trellis area with a selection of hanging plants recommended for the St. Louis area.



Sculptures, topiaries, an obelisk and formal water features will accent the sunken garden planned as a highlight for the Boxwood Garden. A Balkan Garden, Asian Garden and Williamsburg Boxwood Garden will surround the area.

lawn area edged by perennial and annual borders that will be ringed by a trellis area displaying hanging plants. There will be an intensive garden displaying fruit trees in tubs and an espaliered wall. A garden for a family of four will exhibit the varieties and number of plants that a family could grow for their own use. The family garden will include a display of gardening for children.

An agronomic display will exhibit plant ancestors, the grains that feed the world, and economic crops. A special Ozark Garden will feature a chert glade, a limestone glade and a sandstone glade with the accompanying wildflowers found there naturally. A butterfly meadow is planned with an overlook deck and perennials and shrubs that attract butterflies. A native prairie will be recreated in another area. A bird garden will be demonstrated in an area that is sheltered by shrubs and plants that attract birds. Perennials, shrubs and groundcovers that love shade will be displayed and a special garden will be devoted to growing fruits.

At the southeast portion of the Home Gardening Center will be the Boxwood Garden. It will feature a large sunken lawn area edged by steps with benches and sculpture. Visitors will look across the lawn area toward topiaries, an obelisk and a formal water feature with terraced steps. Surrounding the main lawn area will be garden "rooms" including a formal Williamsburg Parterre, a Balkan Garden and an Asian Garden. The latter refer to types of boxwood.

Funding for the project thus far has been provided through a generous gift from Dr. and Mrs. Walter Moore. The overall plan for the Home Gardening Center has been completed by Geoffery Rausch of Environmental Planning and Design, the master planner for the Garden. Karl D. Pettit III of Mackey & Associates is the designer of the Boxwood Garden, and Louis Saur of Louis R. Saur and Associates, Inc. is the architect for the building.

It is estimated that it will be 1986 before final work drawings and bid documents can be finalized for this project. It is anticipated that a project of this scope could be completed and open to the public by 1989. ■

COMING IN AUGUST

Parenting Fair at the Garden

For the second year, Kids In The Middle and the Progressive Youth Center, two area non-profit agencies concerned with youth, will present the highly acclaimed "Parenting Fair at the Garden" on August 10 and 11. The Parenting Fair provides the perfect opportunity for parents to gain valuable knowledge on many current and topical issues dealing with the important aspects of parenting.

Increasingly, parents in all stages of parenthood need and want information on how to be effective and successful parents. Healthy parenting is not a natural skill, but is acquired and learned. It is one of the greatest challenges of the 1980s, and family stability is one of our greatest national resources.

The two-day event for St. Louis area parents and their children will be educational as well as entertaining. There will be ongoing exhibits, seminars, lectures, and entertainment. Information, services, and products of interest for expectant parents through parents of adolescents will be presented by area organizations and businesses.

Over twenty-five seminars and lectures will be held on both Saturday, August 10, and Sunday, August 11. Information on the light and serious sides of parenting will be presented. Topics include subjects of general interest such as "How Parents Can Teach Self-Motivation," "Developmental Tasks of Early Adolescence," "Stop, Look and Listen," "An Overview of Developmental Issues for Children Ages 0-6," and "Activities To Do With Your Child In St. Louis." In addition, there will be seminars on special interests including "Teen Suicide," "Children and Death," and "Effects of Divorce."

The Parenting Fair will be a festive occasion with a festival atmosphere. Entertainment will include the Happy Tappers performing mountain clogging and square dances, bag pipers, strolling mimes, magicians, and clowns. Chef Combo from the Saint Mary's Health Center will present a puppet show on Saturday. Several theatre performances are planned for Shoenberg Auditorium, including a popular storyteller on Sunday afternoon.

Non-profit organizations which provide services related to children and parenting will have booths in the Jordan Education Wing. Exhibitors in the Orthwein Floral Hall will include a variety of businesses that provide child-related products and services.

The fair will be open from 10:00 a.m. to 5:00 p.m. on both Saturday and Sunday. Lectures will begin at noon on each day. In addition to regular admission to the Garden, visitors will pay a minimal admission to the Fair. Admission to the Parenting Fair is $1.00 for ages 16 and over. Children under 16 are admitted free. Free child care (limited to 1-4 year olds and up to 1½ hours) will be available both days. For more information on the Parenting Fair, please call 569-1277.

ST. LOUIS URBAN GARDENING FAIR / AUGUST 3-4

The popularity of home vegetable gardening is increasing. In fact, one recent study showed it to be the most popular hobby nationwide. If you are harvesting corn, tomatoes, even flowers and herbs from your garden, you might want to pit your own "homegrown" against other St. Louis gardeners.

On August 3 and 4, 1985, the third annual St. Louis Urban Gardening Fair will be held in Orthwein Floral Hall. Entrants in three age categories—youth (18 and under), adult (19-64), and senior (65 and over) can participate in five different contests. These include vegetables, fruits, herbs, flowers and canned goods. Within each contest are many divisions for specific vegetables, flowers, etc.

Participants and the general public will be able to view entrants and winners. During the two days of the fair, educational mini-workshops will be conducted. Topics for the workshops include: Raised Bed Gardening; Herbs; Wide Row Gardening Techniques; Canning Ideas and many more exciting topics.

The fair is being sponsored by the Urban League, Missouri Cooperative Extension Service, Land Reutilization Authority, Gateway to Gardening Association, and the Missouri Botanical Garden.

For more information or an entry form detailing specific categories and judging criteria, please contact St. Louis Urban Gardening Fair, Missouri Cooperative Extension Service, 367-2588 or Urban League Neighborhood Betterment Program, 361-0455.

THE LEGENDARY ROSE

For centuries the rose has been revered for its beauty, its symbolism of purity and faith and for its use for food and fragrance.

HISTORY

The rose is known to have existed on the North American continent for 32 million years. The ancient Romans used to lavish petals on banquet hall floors to perfume the air. As many still do today, the Romans also used the petals to scent their bath water. The rose hip (fruit) contains the highest source of vitamin C of any food. Therefore, throughout the ages, the fruit was made into desserts because of the lack of other cultivated fruits.

The rose family (Rosaceae) contains plants with flowers of five petals, many stamen (male pollen structure) and many carpels (female structure which bears the seed). Many botanists feel this is a very old family and is still rather primitive since some of the earliest flowering plants have many of these same features. In our every-day life many Rosacaeous plants are common, such as crabapple, bramble, cherry, peach, plum and strawberry plants.

today than the "modern rose." Leafing through a rose catalog can be so inviting, though very difficult to limit your selections to a few favorites. Today more than 3,000 varieties of climbers, hybrid teas, grandifloras, floribundas, and miniatures are available in St. Louis. Their blossoms are unparalleled in fragrance and color, in shades of white, pink, yellow, salmon and deep red. The newest cultivars provide us with near-lavender flowers.

Roses are versatile landscape plants. With a wide variety of colors over a long blooming season, roses can provide color spring, summer, and fall.

Hybrid teas are probably the most popular type of rose. These flowers resemble the single perfect rose delivered by the florist. The hybrid tea is a relatively tall, well-formed plant bearing flowers on long stems suitable for cutting. In the landscape the plants are quite versatile, acting as a single specimen, a beautiful hedge, or in a mixed color bed.

Floribundas were developed specifically for landscape use. They are shorter growing plants with smaller blooms, but are quite prolific. These abundant blooms are produced in large clusters and flower continuously throughout the growing season. They are easy to care for and their low height makes them easy to use.

Grandiflora roses are relatively new, being a cross between hybrid teas and floribundas. Their flowers resemble smaller hybrid teas but are borne in clusters much like the floribundas. The first grandiflora was introduced in 1954 and today many rose growers consider them the best for landscape use.

Climbers trained against a wall, rambling along a fence, or spilling over a retaining wall can be quite spectacular. These may be the most versatile since they can be trained to climb a post or cover an arbor. Like the floribundas they have many small flowers creating a mass of color.

Roses are rated for their merit by the non-profit All-American Rose Selections (AARS). This organization's sole purpose is to test new rose varieties to determine which of them should be recommended to the public. Test plants are subjected to a two year testing program where they are grown under actual garden conditions in 23 test stations throughout the country, including the Missouri Botanical Garden. These plants are judged on a scale of 1-10, with 10 being superior; 9.0 to 9.9 outstanding; 8.0 to 8.9 excellent; 7.0 to 7.9 good, and so on. After this two year period AARS compiles the scores from each of the 23 test gardens and any outstanding or superior variety receives an award from AARS.

What this means to the hobby rose grower is that it takes much of the guesswork out of choosing a new rose. Check the AARS rating for each variety's score. The higher the rating, generally, the easier it should be to grow.

CULTURE AND CARE

There is more to growing good roses than just selecting a good rose variety. A certain amount of care must be taken to provide color throughout the summer until the first heavy frost.

WATER

Roses are heavy "drinkers." The frequency and amount of water depends on the weather (natural rainfall and wind), soil type, and the particular type of rose being grown. A little experimenting will give you an idea of how frequently watering is needed. A good rule of thumb is one to two inches of water or rainfall per week or about 5 gallons per plant.

FERTILIZER

Healthy plants are better able to withstand attacks by insects and disease and perform best when additional fertilizer is available to the plant. They should be fertilized with a combination of quick-acting and slow-release fertilizers. A complete analysis fertilizer contains the three major nutrients and some micronutrients. Look for one low in nitrogen such as 5-10-10, 5-10-5, or 4-12-4. Nitrogen, the first number, will encourage green foliage production though too much will discourage flower formation.

Roses need to be fertilized in early spring as they leaf out, after the first flush of growth in mid-June, and once more during the first two weeks of August. Don't fertilize after August 15, since this will encourage new growth that will not have time to toughen up before the first freeze, reducing plant hardiness. A general purpose fertilizer such as Peter's 20-20-20 can also be applied for quicker release to the root system. Always follow label recommendations for exact applications of any fertilizer.

DISEASES & INSECTS

After selecting rose varieties that are disease-resistant and have a vigorous growing habit, a preventive maintenance program should be implemented to help provide excellent roses. Spraying every 7-10 days will give roses the necessary coverage and protection from most of the disease and insect problems commonly associated with roses.

A few general rules: 1) Spray in the early morning; 2) Be careful to cover the top and undersides of the leaves and the surrounding ground to get complete coverage; 3) Look for chemicals which combine pesticides and fungicides. They are quite effective and make this maintenance procedure less bothersome.

DISEASES

There are several diseases commonly found on roses. The most common is Black Spot. Favored by a rainy season, black irregular spots form on the leaves causing early defoliation. Powdery Mildew is also common during prolonged periods of rain. This causes young leaves to curl, growth to be distorted, and the most obvious evidence, a whitish-gray appearance to the leaves, flower buds, and canes. Both of these problems are relatively easy to control with a fungicide and can be prevented entirely if protected with a regular spray schedule.

RECIPE

Rose Petal Jam

People enjoy roses cut, in arrangements or just left on the plant. Why not try something new this year?

1 lb. rose petals
1¾ lbs. sugar
¾ cup water
2½ T lemon juice
red food coloring

In a saucepan combine water and alternate layers of sugar and petals. Add lemon juice. Stir gently and bring to a boil, lower heat and simmer 20 minutes, stirring occasionally. Add a drop of red food coloring for eye appeal. Taste during the simmering period, if petals do not provide a good rose flavoring, add some rose water to taste.

From a teaspoon, drop onto a cold dish to see if it firms up. Pour into jars and seal.

(This recipe was provided by Leona Woodring Smith, whose new book, "The Forgotten Art of Flower Cookery," is available in the Garden Gate Shop.)

Two other disease problems cause a little more trouble. Stem Canker and Crown Gall both cause a lesion on the plant. If either is discovered the infected plant part must be destroyed. In the case of Crown Gall a swollen lesion forms at the base of the plant causing loss of plant vigor, abnormal foliage and flowers and eventual death. The entire plant should be destroyed. Stem Canker causes brown sunken lesions on canes that crack with age. These can simply be cut out and destroyed. It can be controlled with a fungicide.

INSECTS

Insect problems are also easily controlled with regular insecticide spraying. Two major pests are Aphids and Spider Mites. Aphids are generally found on the undersides of the leaves though heavy infestations can occur very quickly and can be found covering any new plant tissue. Aphids have a piercing mouthpart that helps them to suck plant juices from the plant, distorting the foliage and blooms. Lady bugs will feed on these but the problem can get out of hand easily. If lady bug larvae are present, spraying may not be necessary.

Spider Mites can be quite abundant during hot, dry St. Louis summers. Leaves will appear stippled after these minute insects have damaged cells on the underneath side of the leaf. With heavy infestations, you will see a whitish netting on the undersides of the leaves.

Check your local garden center or nursery for pesticides. Ortho, Fertilome, and Spectracide work very well but are by no means the only recommended chemicals.

—BobbiJo Jarvis
Public Horticulture Specialist

JULY-AUGUST

HIGHLIGHTS

JULY 12 *Friday*

Members' Preview of Jack Jennings Exhibit

Jennings has been capturing the beauty of the Garden on film since 1978. His photos have been the inspiration for four Garden calendars and numerous presentations. But despite the attention to detail, use of light and composition, photography is a self-taught art for Jennings. His work will be previewed from 5:30 to 7:30 p.m. for Garden Members only.

JULY 10, 17, 24, & 31
Wednesdays

Music Fest

Enjoy a wide ranging variety of music under the stars on Spoehrer Plaza, 8 p.m.

JULY 20, 21 *Saturday & Sunday*

Canterbury Days

Join the Lords and Ladies of Medieval Days on the Garden grounds. A day of pageantry and celebration with dancing, dueling, dining and more. From 10 a.m. to 4 p.m. both Saturday and Sunday. Call 577-5125 for information.

JULY 24 *Wednesday*

Henry Shaw's Birthday Celebration

You are invited to join the birthday festivities for Henry Shaw, founder of the Garden. A day of celebration with clowns, music and other surprises. 9 a.m. to 5 p.m.

SUMMER LEARNING OPPORTUNITIES

For a complete description of the following courses and activities, please consult the SUMMERSCAPE PRESS 1985—Programs for Children and their Parents which was mailed to past course participants and is available through the Education Department. To check on availability of classes or to request a brochure please call 577-5140.

COURSES AT THE GARDEN

July

3 (W) **Art and Nature or Is Peter Rabbit Real?**
(Ages 4-6), 10:30 a.m. to 12 noon.

6 (Sa) **Festival Day**
(Ages 4-6), 10:30 a.m. to 12 noon.

6 (Sa) **Saturday Morning Series: Clay Crafting**
(Ages 7+ and parents), 10 a.m. to 12 noon.

10 (W) **Jack and the Beanstalk**
(Ages 4-6), 10:30 a.m. to 12 noon.

13 (Sa) **My Own Rock**
(Ages 4-6), 10:30 a.m. to 12 noon.

13 (Sa) **Saturday Morning Series: Print A Shirt**
(Ages 7+ and parents), 10 a.m. to 12 noon.

17 (W) **The Land of the Cactus**
(Ages 4-6), 10:30 a.m. to 12 noon.

20 (Sa) **Dragons and Other Flavors**
(Ages 4-6), 10:30 a.m. to 12 noon.

20 (Sa) **Saturday Morning Series: Historic Households**
(Ages 7+ and parents), 10 a.m. to 12 noon.

24 (W) **Plants Underwater**
(Ages 4-6), 10:30 a.m. to 12 noon.

27 (Sa) **Lotus: From Mud to Bud**
(Ages 4-6), 10:30 a.m. to 12 noon.

27 (Sa) **Saturday Morning Series: Reptile Rendezvous**
(Ages 7+ and parents), 10 a.m. to 12 noon.

COURSES AT THE ARBORETUM

July

8 (M) **Finding Your Way With Map and Compass**
(Ages 10-13), 10 a.m. to 3 p.m.

9 (Tu) **Life on Earth**
(Ages 10-13), 10 a.m. to 3 p.m..

10 (W) **Forest and Field**
(Ages 10-13), 10 a.m. to 3 p.m..

11 (Th) **Water Life**
(Ages 10-13), 10 a.m. to 3 p.m..

12 & 13
(F & Sa) **Nightwatch**
(Ages 10-13), 7 p.m. to 9 a.m.

August

7-10
(W-Sa) **Ozark Trail by Foot and Canoe**
(Ages 13-16), 10 a.m. Wed. to 3 p.m. Sat.

JULY-AUGUST

DAY-BY-DAY

JULY

7-13

Colorado Mountain Ecology

Sunday through Saturday. A fortunate group of congenial St. Louisans will spend the week with flowers, birds, and mountains in Florissant, Colorado. The Nature Place is a National Environmental Study Area situated on the west side of Pike's Peak on 6,000 acres of mountain land. Call 577-5147 for information.

7

Daylily Society

Sunday, 12 noon to 5 p.m. Brief but beautiful daylilies will be shown at their best in Orthwein Floral Hall. Free with regular Garden admission.

10

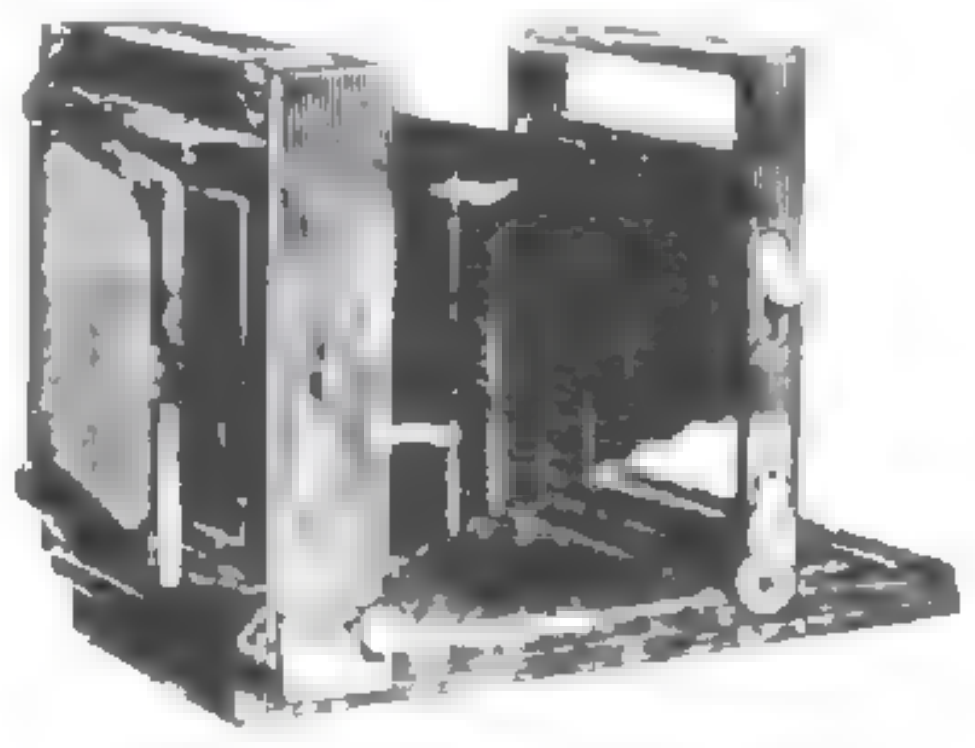
Music Fest

Wednesday, 8 p.m. Enjoy music under the sky with the Invera'an Pipe Band. The concert begins on Spoehrer Plaza. Admission to the concert is $1. (*See Highlights.*)

13

Public Opening of Jack Jennings Exhibit

Saturday. Photographs of the Missouri Botanical Garden as seen through the loving lens of Jack Jennings. On display in Monsanto Hall daily during regular Garden hours. Exhibition runs through August 11.



13

Workshop by Jack Jennings

Saturday, 1:30 p.m. Learn a few tips about photographing nature in general and the Garden in particular. Jennings has been photographing the Garden since 1978. His work is featured in the Garden's annual calendar. Garden Room. Space is limited. Call 577-5125 for reservations beginning July 1.

17

Music Fest

Wednesday, 8 p.m. Music featuring the jazz sounds of the Chad Evans Ensemble with Marcella Hooks. Spoehrer Plaza. Admission $1.00 (*See Highlights.*)

24

Henry Shaw Birthday Dinner for Members

Wednesday, 6 p.m. Members Only are invited to a casual evening dinner on the grounds near Tower Grove House to celebrate Mr. Shaw's birthday. Early family dinner is planned so you can enjoy the Music Fest at 8 p.m. Reservations required beginning July 5. Watch your mail for details.

24

Member's Raffle Drawing

Wednesday, 7:30 p.m. Who will win the trip to London? Be at the Garden to find out!

24

Music Fest

Wednesday, 8 p.m. Continue Henry Shaw's birthday celebration with the bluegrass and Texas swing sound of the Guijons. Spoehrer Plaza, Admission $1.00. (*See Highlights.*)

31

Music Fest

Wednesday, 8 p.m. This is your last chance to enjoy a variety of musical selections in a beautiful setting with the Laclede String Quartet. Spoehrer Plaza. Admission $1.00. (*See Highlights.*)

AUGUST

3, 4

Urban Fair

Saturday and Sunday, 10 a.m. to 4 p.m. The fruits and vegetables from urban gardening projects will be on display in Orthwein Floral Hall. (*See story on page 5*).

6

Members' Garden Tour

Tuesday, 6:30 p.m. A rare opportunity to tour the Garden with fellow members only. This special tour will provide you with a closer look at "how the Garden grows." Tour leaves from Ridgway Center. Space is limited. Call 577-5125 after July 15 for reservations.

10, 11

Parenting Fair

Saturday and Sunday, 10 a.m. to 5 p.m. Learn everything (well almost) there is to know about being a parent, a grandparent, a friend of children. There will be exhibits, lectures, demonstrations, entertainment and more. Don't forget to bring your children. Sponsored by Progressive Youth Center and Kids in the Middle. Ridgway Center.

24

Cactus Society

Saturday, 12 noon to 8 p.m. Come see the unusual ways that plants have adapted to survive in difficult environments. Cactus plants are beautiful, odd, and fascinating. The best will be shown in Orthwein Hall through September 2. Garden hours. Free with regular Garden admission.

Children's Film Fest

Bring the kids for a solid week of all-time favorite children's films. Each film will be shown at 11 a.m. and 1 p.m. in Shoenberg Auditorium. Admission is $1 for all seats. First come, first served.

	JULY
28 (Su)	*Annie*
29 (M)	*The Last Unicorn*
30 (Tu)	*The Great Muppet Caper*
31 (W)	*The Never Ending Story*
	AUGUST
1 (Tu)	*Snoopy, Come Home*
2 (F)	*The Dark Crystal*
3 (Sa)	*The Rescuers*

FROM THE MEMBERSHIP OFFICE

New Member's Board Officers Installed

New members of the Executive Board of the Members include, from left: Mrs. John S. Gray; Mr. John J. Thiebauth; and Mrs. Martin J. Bloom. New Board President Mrs. Charles W. Oertli is at right.

A new slate of officers of the Executive Board of the Members was sworn in at the board's May 6 meeting. New office holders are: Mrs. Charles W. Oertli, president; Mrs. Henry W. Dubinsky, first vice-president; Mr. J. J. Landers Carnal, second vice-president; Mrs. Forrest J. Murphy, secretary; and Mrs. W. Ashley Gray III, treasurer.

The president's gavel was ceremoniously handed from retiring president Nora Stern to Sue Oertli. Mrs. Oertli, expressing her excitement about the coming year, said, "I look forward to serving the membership and working with this board and the staff to continue to make the membership program a popular and important part of the Garden."

The Members' Board also welcomed four new members: Mrs. Martin J. Bloom; Mrs. William R. Gould; Mrs. John S. Gray; and Mr. John J. Thiebauth. Members retiring from the Board were Mrs. Charles Cook, Mrs. Pedrick Conway, Mrs. Walter G. Stern and Mrs. O. Alexander Kerchkhoff.

Members' Special Events

- Henry Shaw's birthday, July 24, is an excuse to celebrate, as well as an activity-filled Members' Day. There will be a music fest, a Members' dinner and the drawing to pick the winners of the trip to London.
- August 6 will be every Member's opportunity for a personal tour of the Garden. The informative Garden Guides will be taking groups on tours starting at 6:30 p.m. If you have never been taken around the Garden by a person who knows the Garden and all its intricacies, this is your chance.
- Both July 24 and August 6 are Members' Days. This means an additional five percent discount on plants, free tram rides, special sale items in the Garden Gate Shop and a Gardenview Restaurant Special Discount.

Climatron Celebration Set

Every birthday deserves a celebration, especially if the birthday involves the world's first geodesic-domed greenhouse. This October 13, the Climatron's 25th birthday will be toasted in fine style. Daylong activities appealing to everyone in the family are planned. A complete listing of the day's activities will appear in the next issue of the Bulletin.

Reciprocal Free Admission

Don't forget to include other botanical gardens in your travel plans this summer. The Missouri Botanical Garden has a reciprocal free admission policy with several institutions around the country. Currently, your Garden membership card will allow you to visit the Massachusetts Horticultural Society in Boston, the Chicago Botanic Garden, Blithewold Gardens and Arboretum in Rhode Island, the New York Botanical Garden, and the Morris Arboretum free of charge. Other gardens and arboreta may be added in the future. Members will be updated on this newest membership benefit in future Bulletin issues.

News from Shaw Arboretum

The Experimental Prairie

From its beginning in 1980 with the planting of seeds of four native grasses and four species of wildflowers, the Experimental Prairie's diversity has been increased by transplanting thousands of forbs (prairie wildflowers) and grasses into small plots in the prairie. Since these plants are perennials, they will be adding interest and beauty to the prairie for years to come. These additions will make the Experimental Prairie a more authentic recreation of Missouri's original prairie, which contained more than 250 species of plants.

These wildflower plots are also producing seeds in large quantities which are collected and broadcast into prepared plots in the prairie, producing plants with a randomness more like that found in nature.

In 1982, an observation deck was built on the highest point of the prairie and the surrounding countryside. A two-thirds mile trail winding through the prairie was also developed in 1982. Along this trail are found several wildflower plots, the observation deck, a shady grove of trees, and a one-acre lake.

The prairie grasses reach their full height in August. Where Big Bluestem (the tallest of the prairie grasses) is dominant, the visitor is engulfed in a shimmering sea of grass up to ten feet tall.

In July and August the blazing stars, prairie clovers, coneflowers, and many other species are blooming in the wildflower plots, while the more widespread sunflowers and goldenrods paint the prairie yellow in September.

The Arboretum's extended hours (daily from 7 a.m. until one-half hour past sunset) allow visitors to enjoy the prairie during the cooler hours of the day.

Save the Date

August 24 is this year's Operation Clean Stream, a day to clean up trash in the Meramec River. Members of the Garden are invited to spend a few hours cleaning the portion of the river that flows past the beautiful Shaw Arboretum. Experience is not necessary, but enthusiasm and a canoe are appreciated. For more information call Kimberly Perry (Coordinator) at 694-8875 or Dave Wilson (Environmental Education Manager) at 577-5147.

Volunteers Honored for Service

Garden volunteers were saluted for their generous contributions to the Garden of time, effort and knowledge on May 16, at Volunteer Evening. More than 200 of the Garden's 500 volunteers showed up to accept the thanks of the staff and recognize those volunteers whose service deserved special attention. Pictured above, accepting awards from Garden Director Peter Raven for outstanding service are (clockwise from upper left): Patty Lehleitner, Director's Office–Commitment; Bea Schultz, Botany–Achievement; Art Christ, Bill Davit accepting for Nell Menke, Betty Nellums, and Susie Russell, Shaw Arboretum–wildflower experts; and Nan Day, Volunteer Instructors–Special Services. Not pictured is Jules Gewinner who was honored as Volunteer Emeritus.

Blue Ribbon Tours

Take a walking tour with a focus! The Blue Ribbon Tours are designed to appeal to the diverse interests of adults. Tours last approximately one hour. Tours are offered at 10:30 a.m. and 1:00 p.m. on weekdays and at 10:30 a.m. on Saturdays. Consider the option of combining the tour with lunch. An attractive box lunch can be served before or after the tour.

The minimum number in a group must be 15. The charge per person is 50 cents which must be paid in advance. Reservations must be made four weeks in advance. For a brochure and registration form, call 577-5140.

Walking tours for adult groups appeal to the traveler, the gardener, the art lover, the garden lover, the nature lover, and the collector:

- **Sculpture in a Garden Setting:** from neo-classic to Calder, Moore, and beyond. Available: Summer & Fall.
- **A Tree Walk Around the World:** discover exotic trees from the world over and our own native Missouri trees. Available: Summer, Fall & Winter.
- **Gardening in the Shade:** explore the English Woodland Garden and the Hosta Garden and their shade loving plants. Available: Spring, Summer, & Fall.
- **Japanese Gift to Garden Design:** Seiwa-En, a garden designed for all four seasons. Available: All year.
- **A 60 Minute Vacation in the Tropics:** be transported instantaneously to the warmth and beauty of the Climatron. Available: Winter.
- **Plants of the Holy Land:** a Biblical tour through the Mediterranean House and Climatron. Available: March.
- **Backstage at the Garden:** your choice, a behind the scenes greenhouse tour or a tour of the research facilities. Available: Winter.
- **Architectural Variety in a Garden Setting:** from Italian villa to geodesic dome, 125 years of architecture. Available: Summer & Fall.
- **Prime Time for Camellias and Orchids:** visit the historic Linnean House and the Orthwein Floral Hall. Available: February.
- **Around the World in 60 Minutes:** explore the plants of different continents brought together for the traveler and plant lover. Available: Fall & Winter.
- **New Discoveries, New Designs:** the Garden's latest introductions, plants and plantings. Available: Spring, Summer, & Fall.

For Younger Members

Vegetable Harvest

Vegetable gardening is a familiar—and rewarding—activity during the summer months. Many of the seeds sowed in the spring, such as lettuce or radish, have already yielded a harvest. Other plants, such as corn, peppers or tomatoes, still have some growing to do before they can be harvested.

Harvest means to gather the roots, stems, leaves, fruits, or other plant parts that provide food for people. Roots that we eat include radishes, beets, and carrots. Leafy plants include spinach, cabbage and lettuce. We eat stems when we consume asparagus or rhubarb. The fruit of a plant is the part that contains the seeds, and includes foods such as peas, green peppers, squash and tomatoes.

You can learn a great deal about the vegetables in your garden simply by cutting, examining, and tasting some of the harvested foods. Below are two projects for you to try. Enjoy sharing both your knowledge and harvest with your family or friends.

PROJECT: *Discovering Seeds*

You will need: tomato, avocado, squash, green pepper, eggplant, peas or beans; knife; cutting board.

What to do: Examine each vegetable on the outside. Feel its skin; is it rough or smooth? What color is it? Carefully cut the vegetable crosswise. Is it dry or juicy inside? Are seeds visible? How many seeds are there? Are the seeds located near the center of the vegetable? Are they arranged in a special pattern? Are the seeds edible (able to be eaten)? Which vegetable contains the most seeds? Which the least? The largest seed? The smallest?

Ask yourself the same questions as you cut open each vegetable. Be sure to taste each one, too. Some taste even better after they have been cooked or baked.

PROJECT:
An Eight-Layer Salad

You will need:

1 large head lettuce (*1st layer*)
5-6 ribs celery (*2nd layer*)
1 onion (*3rd layer*)
1 green pepper (*4th layer*)
½ lb. peas (*5th layer*)
½ cup mayonnaise and
½ cup sour cream (*6th layer*)
1½ tablespoons sugar (*7th layer*)
4 ounces shredded cheddar cheese (*8th layer*)
salad bowl; knife

What to do:

Wash the lettuce. Tear its leaves into bite-sized pieces and place them into the salad bowl. Cut the ribs of celery into thin slices; place them on top of the lettuce. Chop the green pepper; it will be the third layer to be placed in the bowl. The fourth layer will consist of chopped onions. Remove the peas from their pods and place the peas on top of the chopped onions.

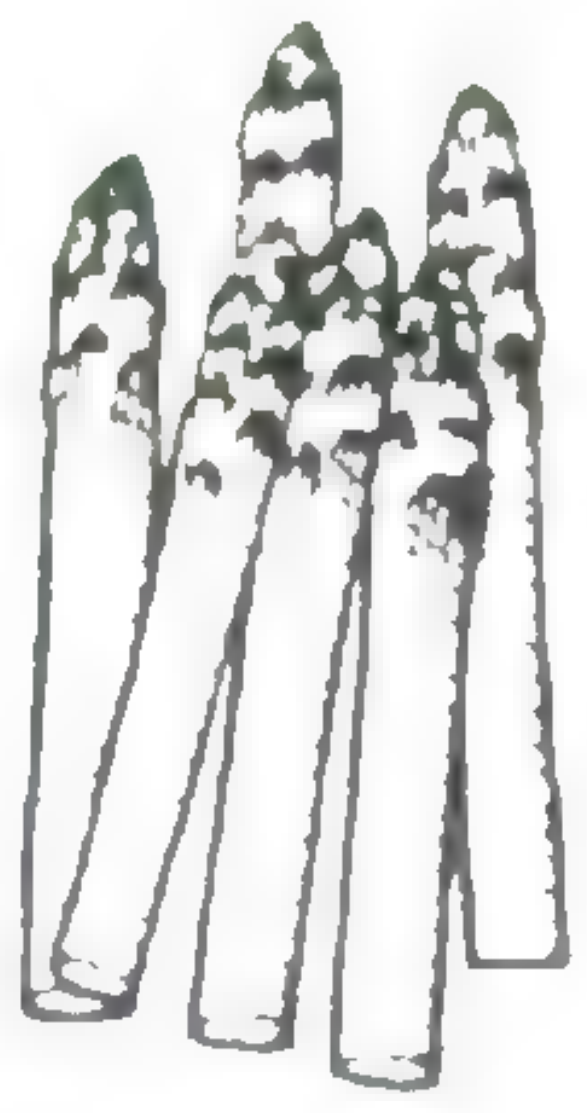
Next, mix the mayonnaise and sour cream together. Spread the mixture evenly over the layer of peas. Pretend you are icing a cake! Then, sprinkle 1½ tablespoons of sugar on top of the "icing." Last, but not least, sprinkle the salad with grated cheddar cheese. Just before serving, toss all the ingredients together. Taste and enjoy!

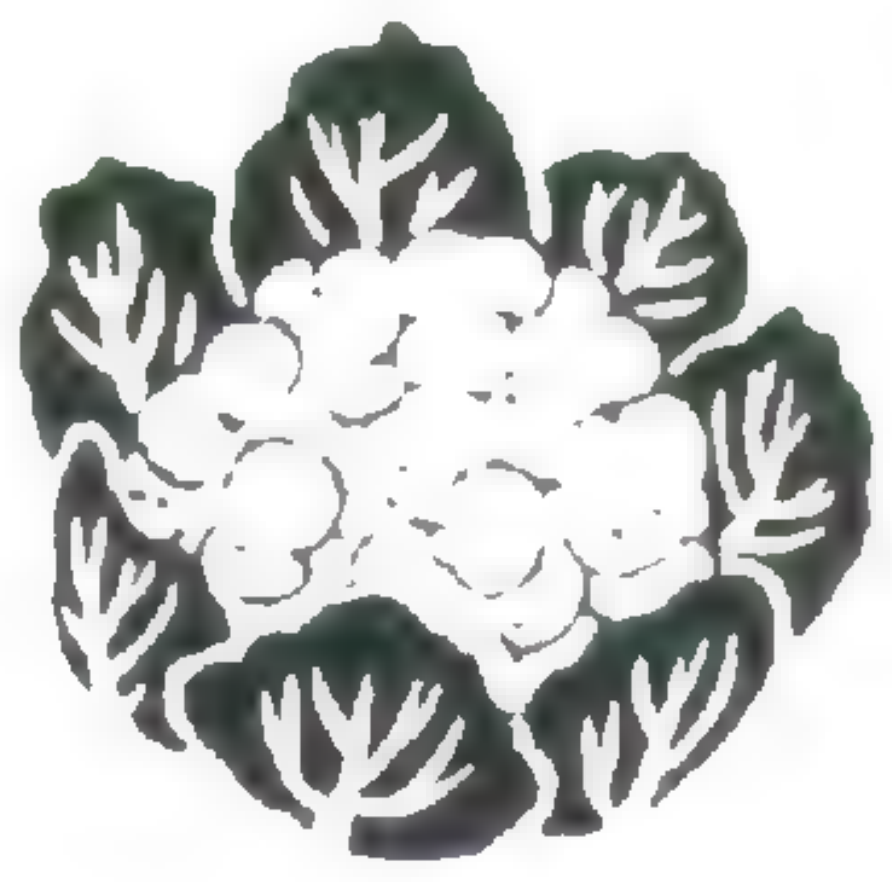
—Ilene Follman, Education Consultant

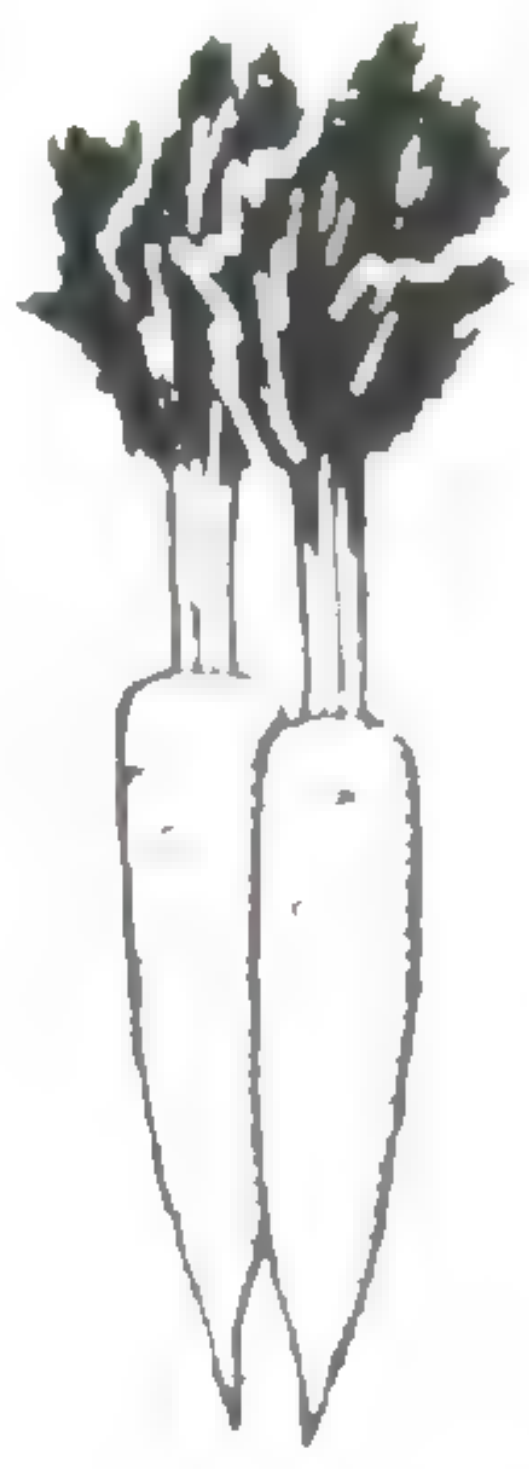
MATCHING

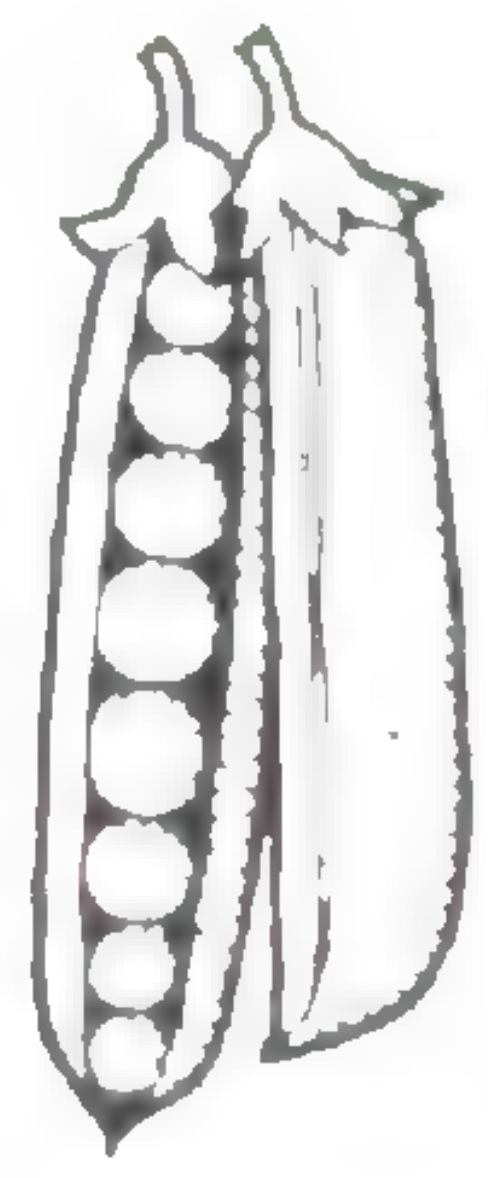
ROOT
STEM
LEAF
FLOWER
FRUIT

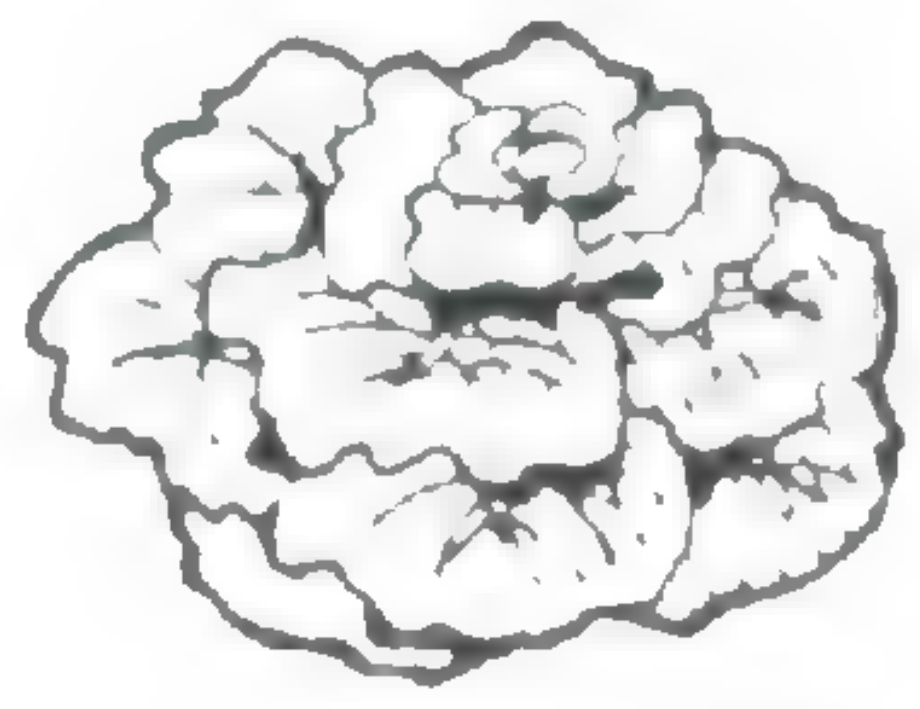
Some vegetables we eat are leaves, others are stems or roots or even flowers or fruits. Draw a line from the picture to the plant part you would be eating.


Asparagus


Cauliflower


Carrot


Pea


Lettuce

New Officers Elected

Sandra Hasser Bennett was elected chairman of the commission of the Botanical Garden Subdistrict of the Metropolitan Zoological Park and Museum District of the City and County of St. Louis at the commission's annual meeting on May 21, 1985. The Botanical Garden Subdistrict commission appropriates and oversees approximately $2.6 million given annually to the Garden from a special property tax collected from the residents of St. Louis City and County.

Other officers elected at the meeting were: Priscilla B. McDonnell, vice chairman; Deborah Edwards, secretary; and Betty Farrell, treasurer.

Botanical Garden Subdistrict commissioners for 1985 are (left to right): Robert M. Sunnen, outgoing chairman; Sandra Hasser Bennett, chairman; Deborah Edwards, secretary; Pamela Shepard (front); Marjorie M. Weir; and Priscilla B. McDonnell, vice chairman. Commissioners not pictured are: Doris Moore-Glenn; Betty Farrell, treasuer; George H. Walker III; and Frederick S. Wood.

Tributes MARCH-APRIL 1985

IN HONOR OF:

Mrs. Emmett Abel
Mrs. M. S. Van Devanter
Paul Anderson
Ruth Kelley
Sharon and Ron Burde and family
Mrs. Martin J. Bloom
Mr. and Mrs. Walter Stern
Mr. and Mrs. Harold Brod
Mr. and Mrs. H. Lewin
Mr. and Mrs. Steven Brown
Harold and June Kravin
Mrs. Rhodes E. Cave
Mrs. John E. Curby
Mrs. E. R. Culver, Jr.
Mrs. J. Kenneth Hyatt
Mr. Edgar Denison
Mr. and Mrs. Charles L. Tooker
Rose and Homer Doerr
Ms. Christy H. Doerr
Mr. and Mrs. David S. Hooker
Mr. and Mrs. Arthur Evertz
Mr. and Mrs. Paul W. Crow
Mrs. Ina Freund
Mr. and Mrs. Harold Lewin
Mr. Irwin Gittelman
Mrs. Frances Rothman
Mrs. Robert A. Heilig
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Mr. and Mrs. Emanuel Jackoway
Mr. and Mrs. Milton J. Canis
Mr. Jack Jennings
Castlereagh Garden Club
Catherine R. Kriegshauser
The Hruby Family
The George G. Kreigshauser Family
Ann Kriegshauser
Claire Kriegshauser
Linda Kriegshauser
Tim Leinauer
Bridget Malloy
June C. Kravin
Mrs. Marie Levi
Mr. and Mrs. Lester Adelson
Sunny and Myron Glassberg
Mr. and Mrs. Joseph Linneman
Ruth E. Buerke
Frank Bush
Dr. and Mrs. George A. Mahe
Susan and Ned Fryer and the girls
Mr. Roger H. Moore
Anonymous
Mr. and Mrs. Fred A. Oberheide
Mr. and Mrs Wylie Todd
Mr. and Mrs. Jack Oberman
Mr. and Mrs Ed Presberg
Mr. and Mrs. Joseph Polisena
Mr. and Mrs. Howard Gilby
Joseph and Rose Puleo
Mr. and Mrs. Peter A. Puleo
Kathryn Amelia Raven
Mrs. Hiram Norcross
Dr. Peter H. Raven
The Sisterhood of Temple Israel
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Mr. Stanley Rolfson
Dr. Stanley Rolfson
Mr. and Mrs. Phil Schickedanz
Mrs. Frances C. Rothman
Helen Flegel
Sally Gorman
Elaine Rothman
Mary Ruprecht
Nell C. McDonald
Mr. Fred Sale
Sunny and Myron Glassberg
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Mr. and Mrs. Charles E. Claggett
Mrs. Dorothy Schmitz
Sally and Nardie Stein
Sean Visintainer
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Mrs. Edward J. Walsh, Jr.
Judy and Christopher Anstey
Mr. Charles Weitz
Mr. and Mrs. Kay Sherman
Robert A. Wendel
Commerce Bank of St. Louis
Father Paul Wieck
Mr. and Mrs. Clarence J. Seibert
Mr. and Mrs Kermit L. Winter
Mr. and Mrs. Brian R. Bender

IN MEMORY OF:

Mona Andrews
Mr. and Mrs. Henry Belz III
Mr. and Mrs. W. H. Armstrong
Mr. and Mrs. W. H. Armstrong, Jr.
Mr. Tillman R. Atchison
Mrs. Leslie Gleason-Hawksbee
Dr. Roy Atwater
Bob and Jane Green
Miss Hélene Bakewell
Roberta and Michael Gutwein
Mrs. Jean H. Bakewell
Mr. Edmund T. Allen
Mr. and Mrs. James Hudson Jones
Mr. and Mrs. Ben Peck
Mrs. Henry J. Scherck
Mrs. Whitelaw T. Terry
Mrs. Edna Barnes
Mr. Donald Flanagan

(continued on next page)

Tributes

(continued)

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Mrs. Gail Beckman
Mr. Francis Bernard
Mr. and Mrs. J. Harold Matthew
Mr. Stanley J. Birge
Mrs. Dwight W. Coultas
Mr. and Mrs. O. P. Hampton III
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Marilyn McDonald
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Gladys Duemler
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Garland E. Allen
Agnes Baer
Mr. and Mrs. Howard F. Baer
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Mrs. Virginia Townsend Nash
Miss Elizabeth Goltermann
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Mrs. Ethel Pemberton
Mr. and Mrs. Louis E. Sauer
Mrs. Emily Harvard Perkins
Lee Funsten
Mrs. Roblee McCarthy
Ms. Rosemary Woodworth
The Rev. Frederick A. Pope
Mr. and Mrs. Donald F. Nelling
Mrs. Isabel Price
Mr. and Mrs. Henry Dubinsky
Mother of Mrs. Frank Prins, Jr.
Sunny and Myron Glassberg
Jeff Puckett
Sally J. Andjelich
Mr. Richard L. Barteau
Vincent G. Baumann
Carl Beck
Mr. John C. Bierk
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Patsy L. Boren
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Peter Morgan Carr
Bernie L. Corn
Wayne Drees
Dan and Susan Dueber
Carl Eckert
Mr. Jim Eimers
Dr. Gerald J. Fivian
Bud Forrest
J. Michael Gerboc
Donn C. Gillespie
Margaret L. Gilliam
Jack Gilster
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Plants To Remember

Climbing Hydrangea

Hydrangea anomala subsp. *petiolaris* (formerly *H. petiolaris*)

The Best Vine! An Excellent Four-Season Plant! I can't say enough good things about this deciduous vine. This climber can easily climb smooth surfaces such as walls, fences, homes and also trees. It can also be used as a small shrub if given nothing to climb on. Not found in other climbers, hydrangeas give a multidimensional effect by growing away from the structure. Climbing hydrangeas can be slow to establish but are actually quite vigorous. They have no serious insect or disease problems, making them an excellent selection for any landscape.

In spring, deep green, glossy foliage appears followed by large flat clusters of creamy white flowers in late May to early July. These clusters, actually corymbs, can reach ten inches across. The inner florets are fertile and individually are inconspicuous, though combine these fertile florets with the showy sterile outer florets and it produces a spectacular flower. In the fall, the foliage drops to reveal extraordinary cinnamon brown exfoliating bark. Truly a beautiful plant any season of the year.

This plant can be seen on the north side of the experimental greenhouse located to the south of the Lehmann Building.

—BobbiJo Jarvis

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Missouri Botanical Garden

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The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $35 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

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FROM THE PRESIDENT

During 1984, the Missouri Botanical Garden celebrated 125 years of public service to the St. Louis area. This anniversary provided an opportunity to look back with satisfaction at major accomplishments, and to look forward to the challenges of the future.

This year was the first full year of local tax support which allowed for the completion of important renovation projects and significant expansion of the programs offered to the public. Funds from this tax support were used to help renovate the Climatron, which has become a treasured landmark in St. Louis. Many of the original doors were in very poor condition, and have been replaced, and a vestibule has been installed to generate energy savings. Approximately $100,000 was spent in the Climatron to replace worn-out components and to effect energy saving features.

Other major projects completed in 1984 include the outdoor Dining Terrace, which has brought many pleasurable hours to visitors, and a new Tram Shelter, which was constructed to protect passengers from the elements while they are waiting for a tour of the Garden. The tax support also provided a 50 percent match for funding from the Missouri Department of Natural Resources to help renovate Henry Shaw's original townhouse, which now serves as administrative offices.

This past year, the Garden reorganized its Development Office to facilitate new efforts at seeking broad based support, and to work toward increasing levels of donations.

The Garden also made excellent progress in expanding its public programs to attract, educate and entertain visitors during 1984. Almost 500,000 visitors came to the Garden through the ticket counter and another 77,000 children and adults benefited from our educational programs. The Japanese Festival, in its ninth year, drew 10,000 more people than the year before, with attendance for the the nine-day event topping 56,000. In celebration of the Garden's 125th anniversary, over 100 events, including plays, concerts, films, lectures, exhibits and workshops were held for the benefit of the public.

In recognition of the Garden's national and international reputation, many prestigious visitors were drawn to St. Louis last year. The regional meeting of the American Association of Botanical Gardens and Arboreta was held at the Garden. The World Wildlife Fund-US also selected the Missouri Botanical Garden as the site for one of its few board meetings ever held outside of the Washington, D.C. area. In addition, the Plant Advisory Group, consisting of botanists from throughout the world, met with representatives from the International Union for Conservation of Nature and Natural Resources and the World Wildlife Fund-International. These meetings helped to focus attention on the Garden as an international center for the study of tropical plants.

Our 125th anniversary provided an opportunity to look back with satisfaction, and to look forward to the challenge of the future.

As president of the Board of Trustees, I am quite proud of the past year's accomplishments and am excited about what the future holds for the Missouri Botanical Garden and the St. Louis community.

John H. Biggs

John H. Biggs
President Board of Trustees

FROM THE DIRECTOR

What an anniversary party! In 1984 the Missouri Botanical Garden was 125 years old. We celebrated. We reminisced. We were proud. But most importantly, we honored the Garden's beginnings by planning for the future.

At 125 years, we are old in some ways and just beginning in others. This past year has been one of reflection, celebration and anticipation.

This past year was the first full year of funding from the Botanical Garden Subdistrict, established by the voters of the City and County of St. Louis in 1983. This important source of funds will provide the kind of financial stability to help assure that the Garden will continue the best possible programs in research, display and education in the future.

The Henry Shaw Fund continues to be a mainstay of the Garden's financial health by providing dollars for general unrestricted uses. In 1984, contributions to the fund totaled $473,000. Of this amount, 41% was raised through the year-end efforts of the Board of Trustees, the Henry Shaw Committee, our annual phonathon and a mailing to the membership.

By year end, $620,000 had been raised toward the goal of improving and expanding the library and herbarium facilities in the John S. Lehmann Building. Numerous individuals, corporations and foundations contributed toward this project. An $85,000 challenge grant from the National Endowment for the Humanities was awarded to reorganize and improve the library portion of the building.

We began seriously looking to the future in 1984 with the institution of long-range planning. Garden administrators are now required to develop three-year plans, which are updated annually. This administrative mechanism assures that our goals are clear and that the available resources are focused on the objectives of the institution.

There were other decisions made during the past year that will help the Garden maintain a sound administrative base. New equipment systems were installed that will eventually provide for compatible electronic information systems throughout the Garden. The new systems will standardize training, equipment and supplies.

New contracts, policies and procedures are in place to make our rental and catering operations more efficient and more responsive to client needs.

The Garden underwent an intensive review by the American Association of Museums, and was later re-accredited as a museum. The senior review officer called the Garden "an outstanding institution with an international reputation." The accreditation commission commended the Garden for the forward progress made since its original accreditation in 1975.

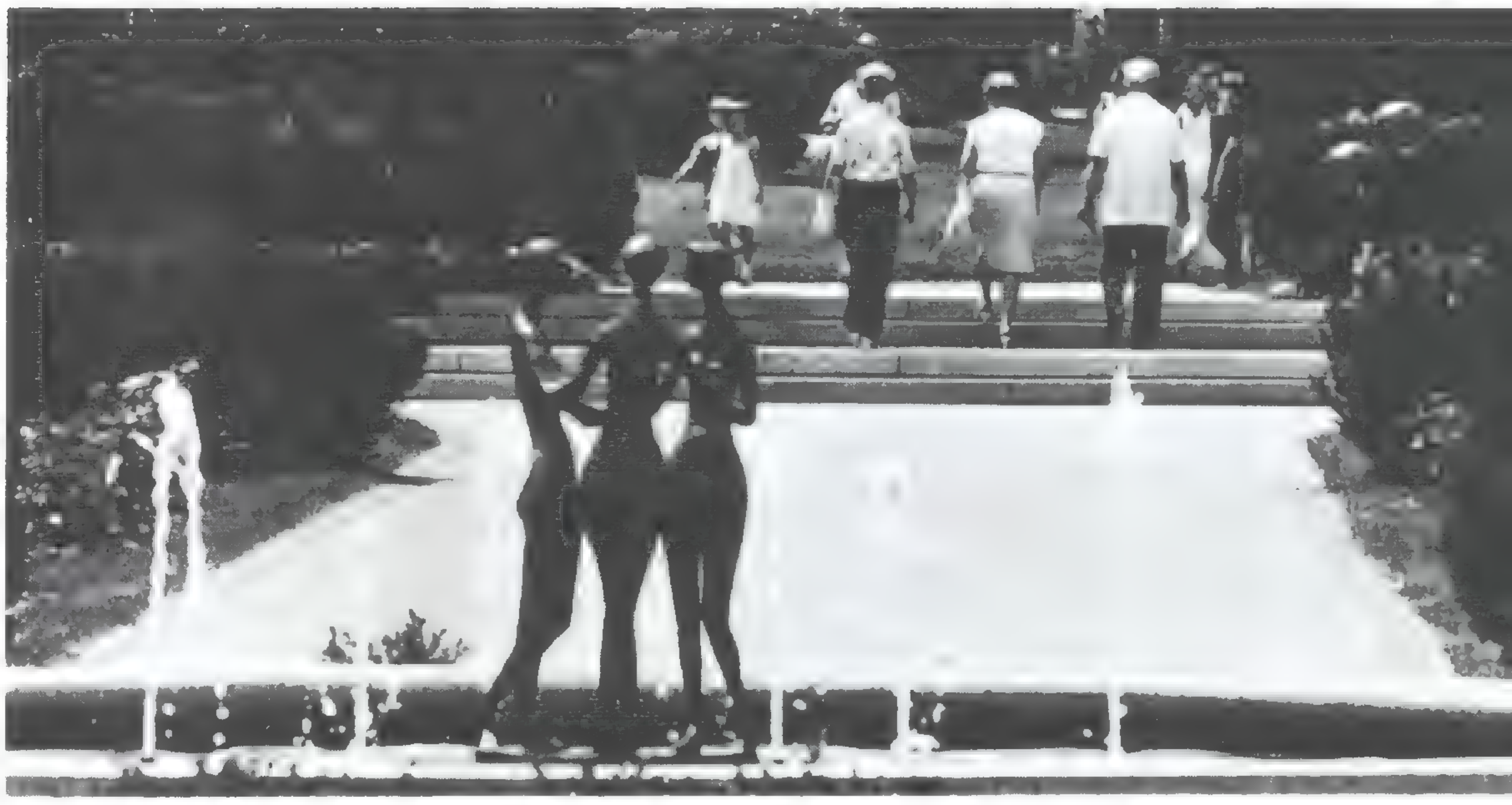
Additionally the Garden was recognized for its potential contribution to future technology by being named one of the founding institutions for the St. Louis Technology Center, along with Washington University, St. Louis University, Southern Illinois University and the University of Missouri.

At 125 years, we are old in some ways and just beginning in others. Our beloved Climatron will be 25 years old in 1985, and is badly in need of renovation. We are also deep into the planning phase for the enormously exciting new Home Gardening Center. This center, which will be 8.5 acres of ideas for home gardeners, could very well be the most popular feature ever constructed at the Garden.

The wonderful part of celebrating an anniversary is that it forces us to look back at the tremendous accomplisments of the past. It inspires us also, to seek greater accomplishments for the future. This past year, 1984, has been one of reflection and celebration of our past. It has also been one of confidence and anticipation of our future.

Peter H Raven

Dr. Peter H. Raven
Director



RESEARCH

The Garden's Herbarium is one of the most active in the world, particularly in the areas of the New World tropics and Africa. In 1984, 52,470 herbarium specimens were acquired through exchanges, gifts, and purchases. In addition, the Garden acquired the Monsanto Herbarium, which contained collections made by Frederick Comte, as a gift from the Monsanto Company. The Garden also received the Traub Herbarium, which is rich in historically important specimens of Amaryllidaceae, as a gift from the American Plant Life Society.

Staff and associates made 34,700 collections, which, including duplicates, amounts to about 173,500 specimens. A total of 81,581 specimens were mounted and filed in the herbarium in 1984, and another 34,273 specimens were repaired. At the end of the year there were 3,172,863 mounted and numbered plant specimens in the herbarium. The herbarium distributed 68,625 specimens as exchange, gifts for identification, and specimens to be returned to institutions in countries in which they were collected.

Another indication of the activity and importance of the research collection is the number of specimens borrowed by other institutions for scientific study. In 1984, 47,747 such specimens were loaned by the Garden's herbarium.

The installation this year of an ADDS Mentor 5300 minicomputer for herbarium activities has been particularly important in providing technical support for incoming collections. Nearly 250,000 specimen labels were entered and printed using

the computer. The minicomputer has also allowed initiation of an important new project to develop a Neotropical Legume database under the direction of James Zarucchi, who joined the staff early in 1984. The database currently contains nomenclatural and bibliographic data on the bean family and includes programs that will allow input and manipulation of information on plant descriptions, distributions, uses and taxonomy.

The Garden's New World tropical research program, which focuses on northwestern South America, was strengthened by the addition to the staff of Dr. Calaway Dodson, noted orchidologist, to coordinate our activities in Ecuador. The Garden's program was also greatly enriched by the addition of Dr. Julian Steyermark. Well known in St. Louis as the author of the *Flora of Missouri*, Dr. Steyermark has spent the last 25 years in Venezuela and will continue his work on the flora of Venezuelan Guayana. Several of the curators and graduate students participated in an

Field work included expeditions in Venezuela, Ethiopia, Tanzania, and Panama.

expedition to the Cerro de la Neblina in Venezuela in 1984. Field activities in Africa were broadened and important contacts made by Roy Gereau, who served as the botanical collector on an exploring expedition on the Omo River in southwestern Ethiopia and also visited botanical institutions in Tanzania.

The research staff was fortunate to have Dr. Elsa Zardini, of the División de Plantas Vasculares del Museo de la Plata, Universidad Nacional de La Plata, Argentina spend the year collaborating with Peter Raven and others on *Onagraceae* (Evening Primrose Family) research. Franklin Ayala Flores of the Universidad Nacional de la Amazonia Peruana, Iquitos, Peru, spent the year at the Garden studying *Dioscoreaceae* (Yam Family), and Hagi Mohammad, of the University of Kuala Lumpur, Malaysia, spent six months here studying mosses.

In addition to the serial research publications of the Garden (*The Annals of the Missouri Botanical Garden, Monographs in Systematic Botany from the Missouri Botanical Garden, Herbarium News,* and the *Solanaceae Newsletter*), the Garden began publishing fascicles of the *Flora del Paraguay* in cooperation with the herbarium staff of the Conservatory and Botanical Garden of the City of Geneva, Switzerland. The Garden also published *Behind the Scenes* by Cora Steyermark, which contains her reminiscences of collecting with Julian Steyermark while he was preparing to write the *Flora of Missouri*.

In 1984, the Library added 1,102 new books and serial titles to the collection. Under a Department of Education grant, jointly held with the New York Botanical Garden, 1,372 titles were recataloged. The recataloging will continue in 1985 and 1986 under a grant from the Pew Memorial Trust.

The Library received an $85,000 National Endowment for the Humanitities challenge grant for renovation of the Library portion of the Lehmann Building. The redesign of the Library will provide additional space for the rare book and bindery areas, as well as increased security and protection for the collections.

M. R. Crosby

Dr. Marshall R. Crosby
Director of Research

EDUCATION

The 77,091 students who took part in the Education Department's classes in 1984 represent a 28 percent increase over last year. Since 1980, almost 300,000 people have taken advantage of our programs.

The education staff, volunteer instructors and Garden Guides continued to provide quality programming in adult, youth and family activities in horticulture, botany, natural history, arts and crafts, and environmental education. The newly implemented K-6 city school curriculum took advantage of the numerous classes offered at the Garden in Partnership, Magnet and Pairing-Sharing programs. ECO-ACT, the Garden's student leadership program in environmental education, continued its efforts in training selected high school students to teach elementary students sound concepts in ecology and environmental education.

The Garden continued to provide quality programs for all age groups and interests.

Volunteer groups were an integral and influential part of the department's overall achievements. The Answer Service continued to serve the Garden and the community by answering thousands of telephone and walk-in requests for answers to all types of home gardening, lawn care and house plant problems. The Master Gardeners again worked closely this year with the Missouri Cooperative Extension Service to provide programs in horticulture and botany to community groups, including the Samuel D. Soule Center for Senior Citizens program. The Volunteer Instructors were responsible for youth program instruction and the Garden Guides enthusiastically conducted tours of the Garden's collections for youth, adult and special group visitations. Both volunteer groups have enhanced their efforts with new volunteer recruitment, and enrichment and training programs.

The training of in-service teachers through various grants has allowed the Garden to participate directly in the improvement of science education at all grade levels. The Spring Science Symposium addressed this national concern with a two-day enrichment program, "The Earth as a Greenhouse: Energy and Ecology." The Garden was also one of 15 institutions of higher learning in the country to receive a three year Chautauqua teacher training grant, this year focusing on an update of ecology and environmental education curriculum for K-12 students.

A Joyce Foundation grant provided teacher training opportunities utilizing the Garden's ever-popular Suitcase Science program available on a loan basis to teachers for classroom instruction in

EDUCATION

various activities in botany, horticulture, natural history and ecology. The Garden also sponsored, through the University of Missouri-St. Louis, two in-service workshops for elementary and junior high school teachers to develop environmental science programs for students utilizing local school resources.

For the first time, the Garden sent an Education staff member to Colombia to participate in an in-service teacher training workshop and we also hosted a teacher from Ecuador who worked closely with our staff in developing environmental education programs for teachers in that country.

The Samuel D. Soule Senior Citizens program offered more than 1,000 older adults in the St. Louis area enrichment programs, both at the Garden and in senior adult facilities. The program provided tours of the Garden's collections and hands-on activities emphasizing horticulture and arts and crafts. The Master Gardeners provided slide show presentations of the Garden as an export phase of the program.

The number of visitors to the Shaw Arboretum increased dramatically in 1984. In all, 36,045 people visited the Arboretum, a 69 percent increase over the previous year. Visitors came to cross country ski, to watch birds, to see wildflowers, to attend a variety of educational programs, or simply to enjoy the solitude and beauty of the natural world.

The Prairie Restoration Project saw significant progress in 1984. Most of the prairie was successfully burned in early spring. A total of 1,406 plants (43 species) were transplanted into four new plots. We also planted four new plots by direct seeding from seeds grown on other plots. Public understanding of the ecological significance of prairies has been greatly increased through this project.

The Adult Education program was highlighted this year by a variety of course offerings in all aspects of botany, horticulture, gardening, and arts and crafts with a major emphasis on adult and family tours focusing on natural history.

Kenneth D. Laser

Dr. Kenneth D. Laser
Chairman of Education

DISPLAY

During the 1984 season we were able to bring to fruition a number of interesting landscape projects at the Garden.

Spring saw the completion of the major portion of the Alice Hahn Goodman Iris Garden, made possible through a gift from Mr. Stanley Goodman. The Goodman Iris Garden is located just southwest of the historic Flora Gate. Here one will have an opportunity to stroll among a myriad of iris. The display begins in early spring with species such as the Reticulated iris and Dwarf Bearded iris and ending up with the Siberian iris in June.

Summer brought the construction and installation of the Dwarf Conifer Garden in memory of George Kassabaum, made possible by a gift from his family. The area completed the rock gardens outside the Mediterranean House. The collection features dwarf conifers from various parts of the world that are substantially smaller than their wild counterparts. The Canada hemlock is a tree which towers to more than 100 feet upon maturity. The selection of the Canada hemlock in the dwarf conifer collection is a mere five and one-half feet high at 35 years of age.

We began the Azalea-Rhododendron Garden

in the fall. It comprises three gardens in reality: the Azalea Bowl, contributed by Lucy and Stanley Lopata; and the Rhododendron Glen and Magnolia Glade, contributed through a bequest by Eyvonne Huch. This is in the area from the tram shelter to the rock gardens. It will feature rhododendrons and azaleas hardy in the St. Louis climate and will include both deciduous and evergreen species and cultivars. Magnolias and other members of the Heath family, to which rhododendrons belong, will play a major role in landscaping this area, along with spring perennials such as Virginia bluebells. Significant improvements in turf were made throughout the Garden last year, including some in the parking area.

The first phase of physical restoration of the Climatron took place during the fall with the installation of a series of new entry doors and ventilator doors. We were able to undertake this project due to the generosity of the taxpayers of the City and County of St. Louis through the Botanical Garden Subdistrict of the Zoo-Museum Tax District. These improvements will ultimately contribute to better growing conditions for the plants and reduced energy costs for the Garden.

The first phase of physical restoration of the Climatron took place during the fall.

The indoor displays have continued to be refined and improved. A lovely new fern garden was installed and completed on the Climatron's lower level. The Garden's flower shows have continually improved in quality, bringing more and more interest from our visiting public—a most gratifying situation.

Alan P. Godlewski
Chairman of Horticulture

COMMUNITY

The Garden threw a year-long party; record numbers of people came to look, to listen and to learn.

In celebration of 125 years, the Garden planned and executed more than 125 public events, concerts, exhibits, films, festivals and special occasions for the enjoyment of the community. An award-winning poster donated by Hellmuth, Obata & Kassabaum commemorated the anniversary by visually placing the Garden in time. The Garden threw a year-long party and record numbers of people came to look, to listen and to learn.

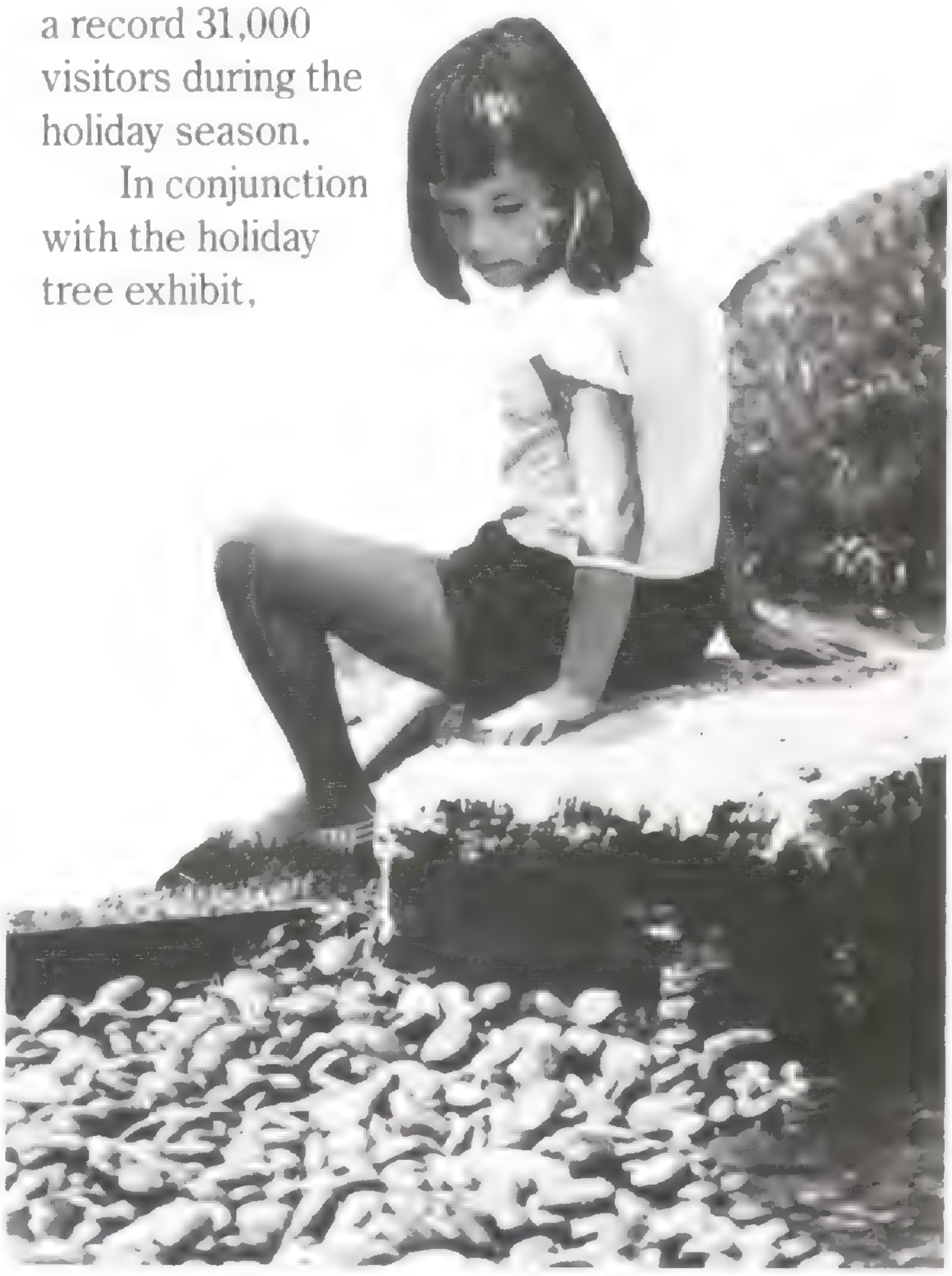
We celebrated Tower Grove House, Henry Shaw's restored mansion, with a benefit that drew several hundred people and raised funds needed to refurbish it.

New events were inaugurated and traditions continued. The popular Japanese Festival broke all attendance records as it was expanded to a full nine days. A series of concerts, entitled Music Fest, was begun to provide summer concerts in a magnificent garden setting. Entertainment and learning opportunities for the entire family were highlights of Botany Days focusing on science. Also new this past year was an exciting series of exhibits that ranged from the work of Charles Marion Russell to Roger Tory Peterson to Peter Ellenshaw. Visitors were given opportunities to hear noted scientists from all over the world including Norman Myers, author of *The Primary Source* and Peter Valder from Australia.

While the public attended Garden events in record numbers, 1984 was a busy and productive year for Garden Members as well. Hours of thinking, planning, fund raising and plain hard work by the Members' Board and staff brought new ideas and events for the year. Clearly the most ambitious was the 125th Birthday Party for the Garden. The event was heralded by a poster designed by Mike Foley of Maritz Communications, and despite continuous rain on September 22, more than 2,500 party goers came to the Garden. They were greeted by an endless supply of birthday cakes, balloons, singers, dancers, puppeteers, a juggler and a magician.

This past year the Members' Board began what should become a very popular tradition. A holiday exhibit was planned and instituted for the month of December. "A Victorian Christmas" graced Monsanto Hall as six local florists created their own conceptions of Christmas trees from days past. The exhibit, along with many special yuletide events, attracted a record 31,000 visitors during the holiday season.

In conjunction with the holiday tree exhibit,



a special Members' tree was decorated with colorful Garden ornaments, each ornament symbolic of a gift membership to the Garden. A new promotion which included a dated Christmas tree ornament attracted nearly 400 additional members during the period, an increase of 75 percent over 1983.

During the year the Membership Services Committee provided a steady and loyal effort. Day after day they staffed their booth in the Ridgway Center, greeted Members and encouraged visitors to consider Garden membership. They were responsible for 730 new and renewed memberships generating more than $25,000 for the Garden. The committee volunteers provided a vital link between the Garden and its Members, and the visiting public.

Both Garden Members and staff worked diligently in 1984 to provide new and unusual programs to entertain and educate the Garden's many audiences. After 125 years of proud history, new ideas were still prevalent as the traditions for tomorrow were beginning.

Pat Rich

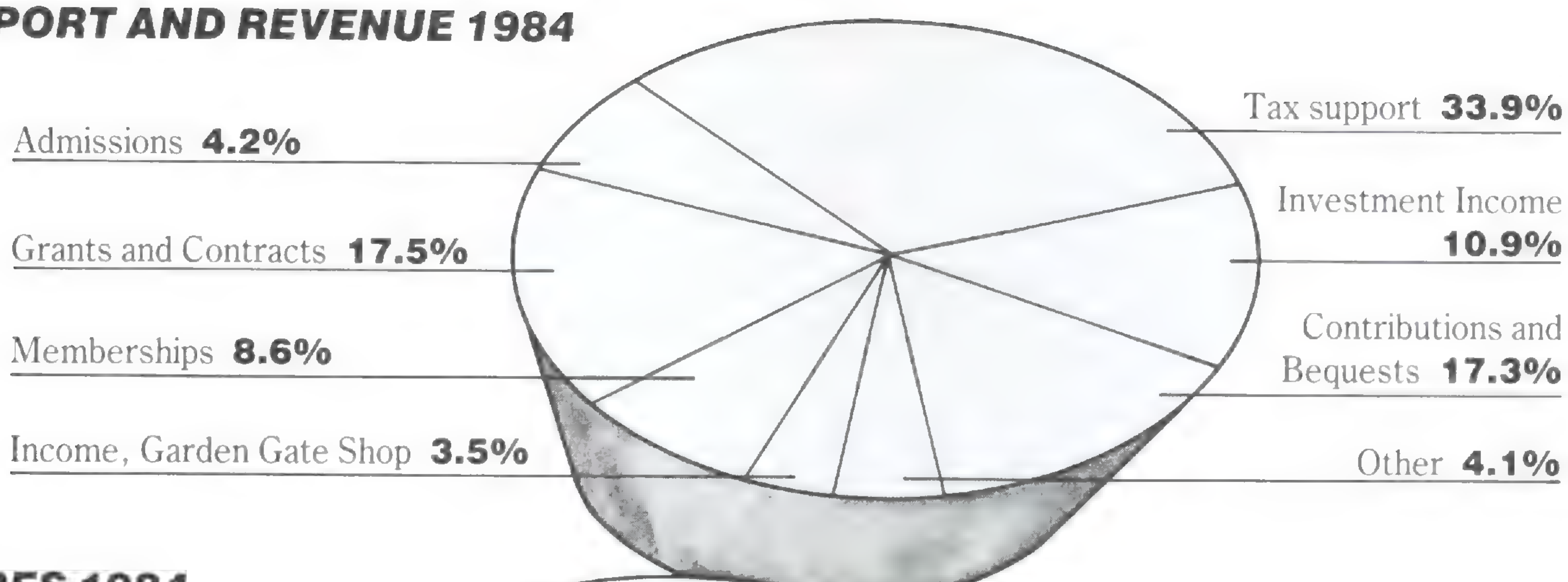
Patricia E. Rich
Director of Planning and Development

FINANCIAL INFORMATION

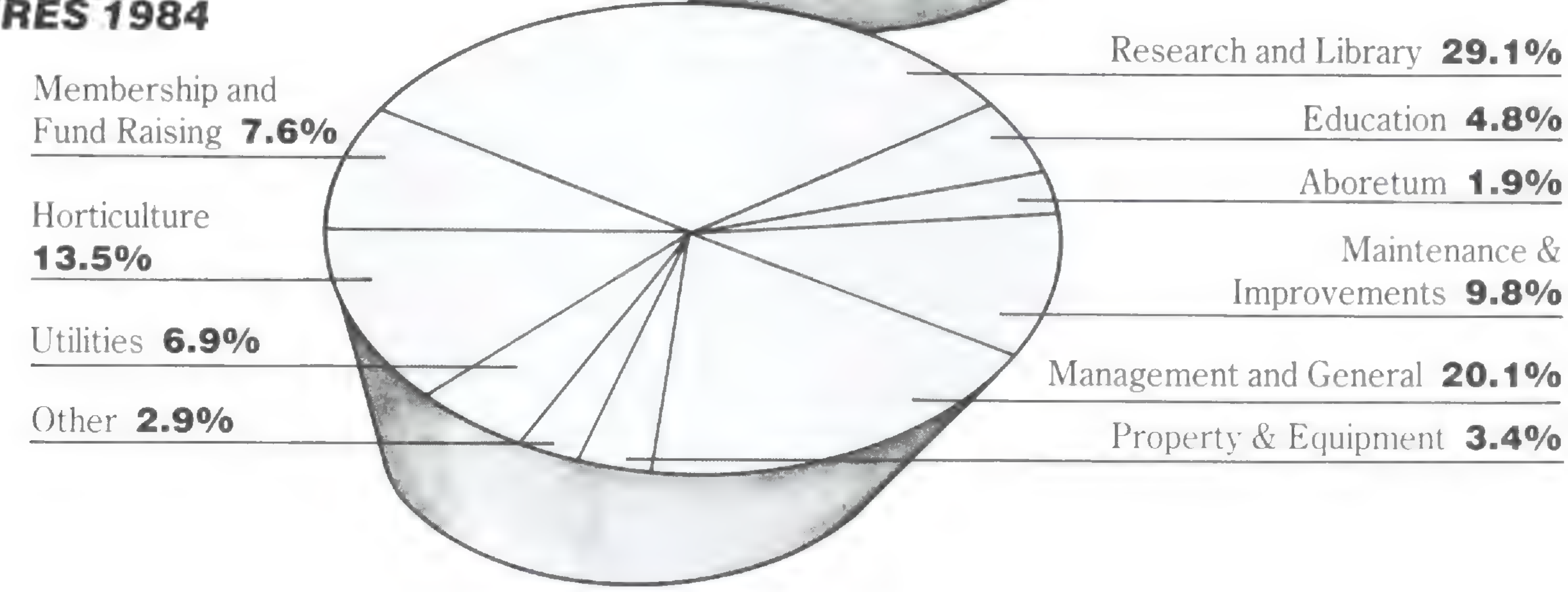
Statements of Support and Revenue, Expenses and Changes in Fund Balances for Operating Funds.

PUBLIC SUPPORT AND REVENUE	*Year Ended December 31*	
Public support—	**1984**	1983
Services provided for Botanical Garden Subdistrict	$ 2,415,531	$ 630,618
Contributions and bequests	1,227,633	1,138,477
The Greater St. Louis Arts & Education Council	—	550,000
Memberships	613,918	649,586
Total public support	**$ 4,257,082**	$ 2,968,681
Revenue—		
Admissions	$ 304,799	$ 386,347
Grants and contracts	1,242,957	1,066,333
Net income from Garden Gate Shop	248,615	159,894
Investment income, net	775,409	740,665
Other	288,272	248,215
Total revenue	**$ 2,860,052**	$ 2,601,454
Total support and revenue	**$ 7,117,134**	$ 5,570,135
EXPENSES		
Program services—		
Horticulture	$ 901,997	$ 727,444
Research and library	1,941,788	1,506,911
Education	320,903	262,382
Arboretum	124,263	104,454
Maintenance and improvements	651,715	560,054
Utilities	458,396	385,423
Security	154,865	138,679
Tower Grove House	37,026	35,741
Total program services	**$ 4,590,953**	$ 3,721,088
Supporting services—		
Management and general	$ 1,340,704	$ 1,243,408
Membership department	377,003	288,118
Fund raising	125,517	82,109
Total supporting services	**$ 1,843,224**	$ 1,613,635
Total expenses	**$ 6,434,177**	$ 5,334,723
EXCESS OF PUBLIC SUPPORT AND REVENUE OVER EXPENSES	$ 682,957	$ 235,412
OTHER CHANGES IN FUND BALANCES— INCREASE (DECREASE):		
Property and equipment transfers	(229,294)	(613,152)
Transfer of funds	(333,676)	(3,038,099)
FUND BALANCES—BEGINNING OF YEAR	**(260,136)**	3,155,703
FUND BALANCES—END OF YEAR	**$ (140,149)**	$ (260,136)

PUBLIC SUPPORT AND REVENUE 1984



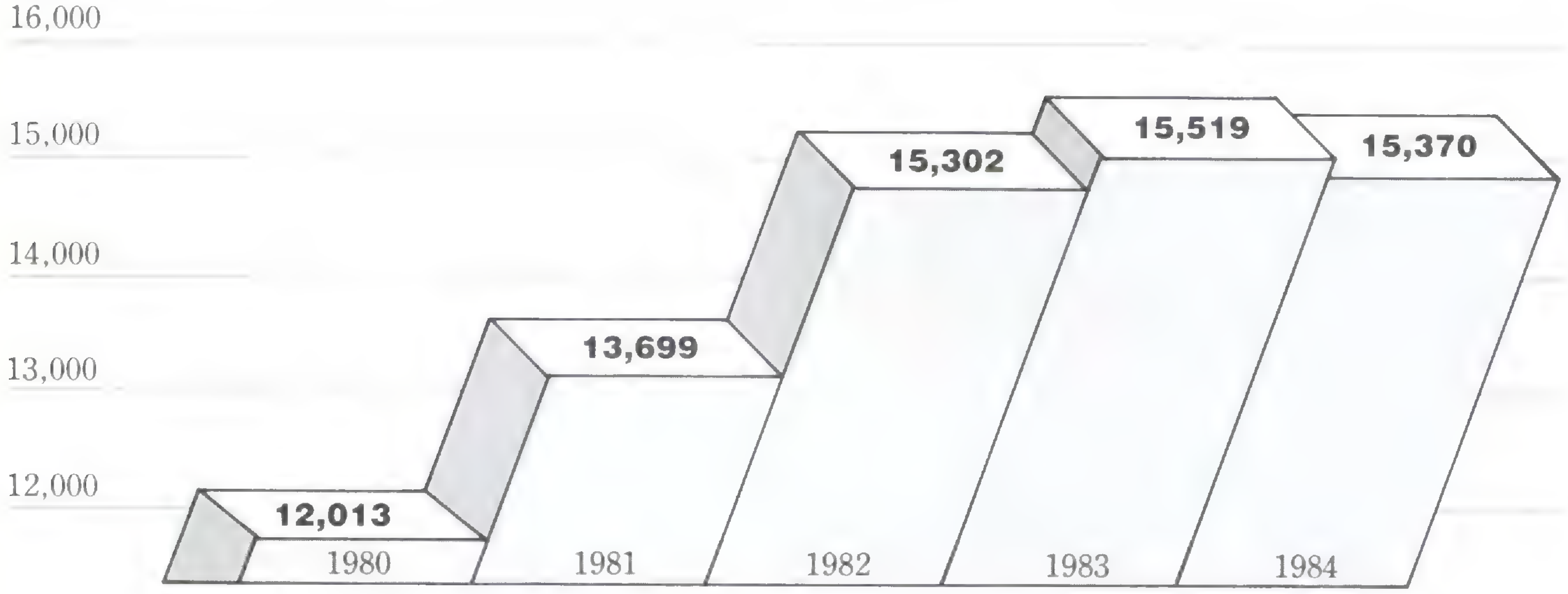
EXPENDITURES 1984



FACTS & FIGURES 1984

Total attendance	**556,531**	Volunteer hours	**49,463**
Students in education programs	**77,091**	Total herbarium specimens added	**81,581**
Active volunteers	**520**	Horticultural accessions	**1,816**

TOTAL PAID MEMBERSHIP 1980-1984



OTHER FINANCIAL INFORMATION

FUND BALANCES (DEFICIT):	1984 *Beginning of year*	1984 *End of year*
Operating Funds:		
Unrestricted	$ (260,136)	$ (140,149)
Restricted	—	—
Endowment and similar funds:		
Henry Shaw Trust	4,584,648	4,632,481
Quasi	3,812,606	4,109,212
Other	499,879	504,745
Land, Building and Equipment Fund	19,517,633	19,440,302
Capital Fund	(267,023)	—
TOTALS	**$27,887,607**	**$28,546,591**

1984 GRANT AWARDS

	Department	*Amount*
CAMELOT (Special Projects Fund of the Arts and Education Council of Greater St. Louis)	*Education*	$ 56,000
Department of Education	*Research*	$ 80,656
Institute of Museum Services	*General Operating*	$ 50,000
Joyce Foundation	*Education*	$ 48,532
Missouri Arts Council (contract)	*Special Exhibits*	$ 32,500
The Missouri Committee for the Humanities, Inc.	*Research*	$ 1,359
National Endowment for the Humanities (challenge grant)	*Research*	$ 85,000
National Geographic Society	*Research*	$ 9,380
National Museum Act	*Research*	$ 19,000
National Science Foundation	*Research*	$614,106
Jesse Smith Noyes Foundation	*Research*	$ 64,124
Pew Memorial Trust (for two years shared with the New York Botanical Garden)	*Library*	$300,000
St. Louis Community Foundation	*Education*	$ 6,500
The Seven-Up Company	*Japanese Festival*	$ 76,000

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Madeline Donaldson*
Margaret Glenn
Holly Hanewinkel*
Lucille Kraus*
Amy Lloyd*

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Guide

Sherry Antonacci
Plant Records

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Margaret Baldwin
Buyer / Gate Shop

Dorothy Bachar
Tower Grove House

George Bates
Answer Service

Inez Bender
Buyer / Gate Shop

Sandra Bergfelder
Japanese Garden / Climatron

Cecelia Beyer
Master Gardener

Adrienne Biesterfeldt
Guide / Climatron / Woodland Garden

Beverly Bishop
Bindery

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Tower Grove House

Dorothy Blumenthal
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Arline Boeschenstein
Tower Grove House

June Booth
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Dale Boring
Greenhouse

Henry Bowman
Rose Garden

Muriel Braeutigan
Japanese Garden

Louise Briece
Answer Service / Special Events

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John Brown
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Botany

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Tower Grove House

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Tower Grove House Historical Committee

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Robert Caveglia
Greenhouse

Mabel Chouinard
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Master Gardener / Display Garden

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Barbara Cook
Executive Board of the Members

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Rose Garden / Knolls

Marie Crigler
Botany

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Kathy Cunningham
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Frank Delonjay
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Silas Dietz
Greenhouse / Answer Service

Mark Distenbach
Knolls Area

Susan Ditson
Climatron

Adam Donges
Arboretum

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Al Edmonson
Climatron / Japanese Garden

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Bindery

Marie Ewers
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Arden Fisher
Development

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Arboretum

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Irene Geer
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Gloria Hampton
Tower Grove House

Wilma Hanks
Gate Shop

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Imogene Hazzard
Herbarium

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Development

Marian Herr
Development

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Climatron

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Tower Grove House Historical Committee / Executive Board of the Members

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Eleanor Kamer
Botany

Gene Kessler
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Roland Ketts
Botany

Sharon Key
Greenhouse

Renate Kheim
Botany

Christof Kheim
Botany

Merle Kind
Tower Grove House

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Guide

Mim Kittner
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Volunteer Office

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Guide / Volunteer Instructor

Helen Kuhn
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Andrea Lambert
Botany

Joy Last
Tower Grove House

Patti Lehleitner
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Guide

Marshall Magner
Master Gardener / Answer Service

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Guide / Herb Garden

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Woodland Garden / Climatron

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Bill Mayer
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Nell Menke
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Botany

Jean Milligan
Library

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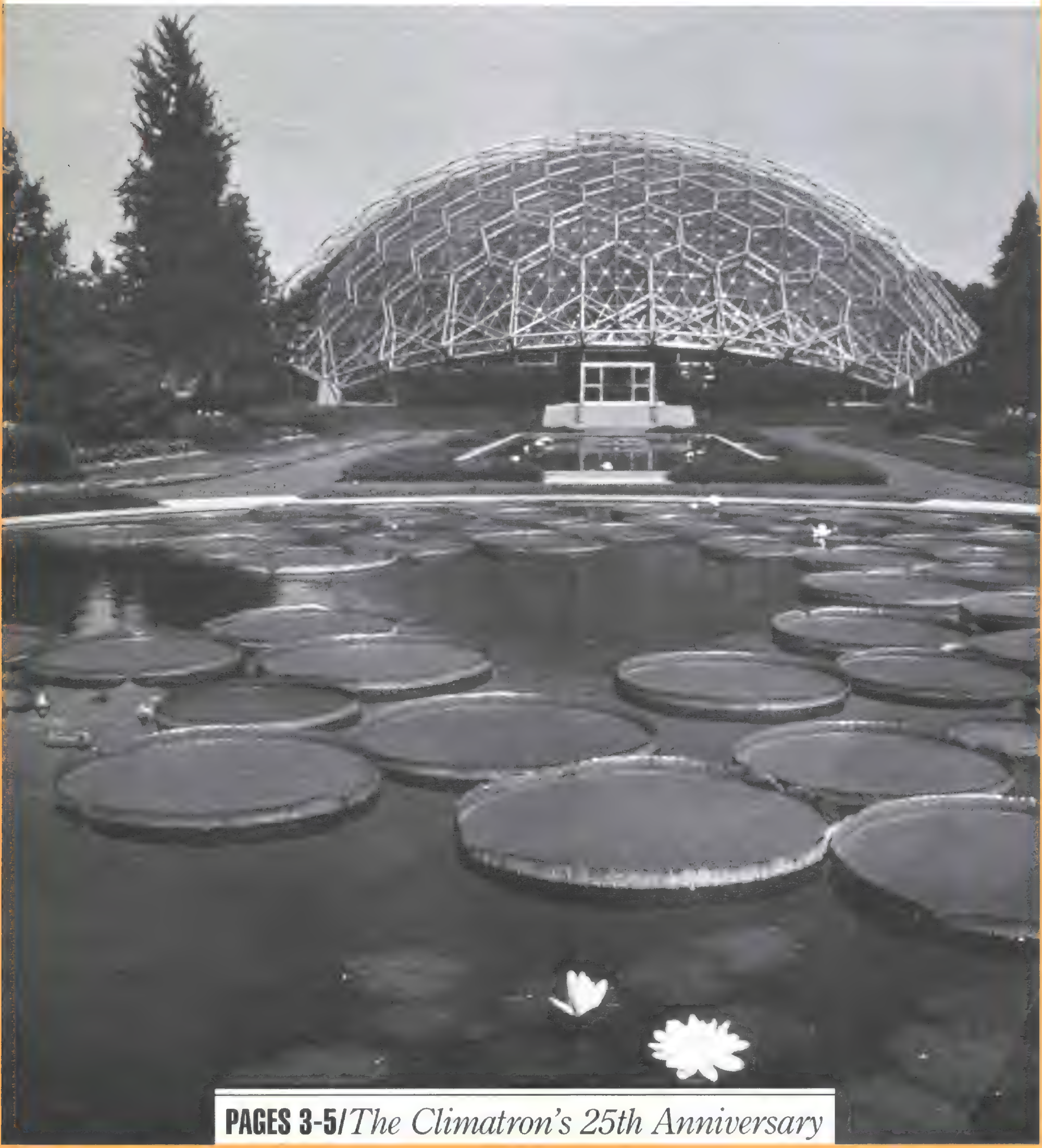

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Comment

The tropical rain forests and the abundant variety of life found there are the focus of many family oriented activities at the Garden this fall.

In September, a special exhibition of rain forest photographs by the National Geographic Society will be featured in Monsanto Hall. Members, of course, will be invited to an exclusive preview, so watch for the invitation. The Garden teams up with World Wildlife Fund-US for a lecture and exhibit, "Future in the Wild," on September 22. Botany Field Days is back this year with an expanded week-long (September 14-20) program for the entire family. It is a tremendous opportunity to take a close look at the Garden's research and exploration program and to see how we use our extensive herbarium collection.

For the entire community, the Climatron celebrates its 25th birthday. Rated by the American Institute of Architects as one of the one hundred most notable American buildings of the twentieth century, it is also a St. Louis landmark. It houses our tropical plant collection and is one of our major attractions for visitors.

For the Climatron's 25th birthday, we are asking you to help us celebrate and to begin the large task of raising money for the renovation of this notable structure. Details are provided in this *Bulletin*. I hope that you will take part as fully as you can. We also bring you an update on the renovation of the Climatron, a necessary and intriguing project. I look forward to seeing you all at the Climatron celebration on October 13.

Peter H. Raven

Crew members from Lodestar Productions in London were at the Garden recently filming an episode of the public television series "Nature" for the B.B.C. and P.B.S. The episode will be titled "The Plant Hunters" and focuses on four scientists in England, Nepal, Israel and the U.S., including Garden Director Peter Raven and St. Louisan James Aronson.

Public television's longest running gardening show, "Victory Garden," visited the Missouri Botanical Garden in late July to tape an upcoming episode featuring our garden. Pictured at left during the taping of a segment on water lilies is Garden Horticulturist Brian Ward (right) with "Victory Garden" co-host Jim Wilson. The Garden will be featured in episode 1025 which will air on KETC-TV, channel 9, on September 21 and 23. The "Victory Garden's" visit was underwritten through the generosity of Mrs. William Schield.

The Climatron at 25

(Above) The Climatron replaced the old Palm House but its main entrance remains as the centerpiece of the newer structure.

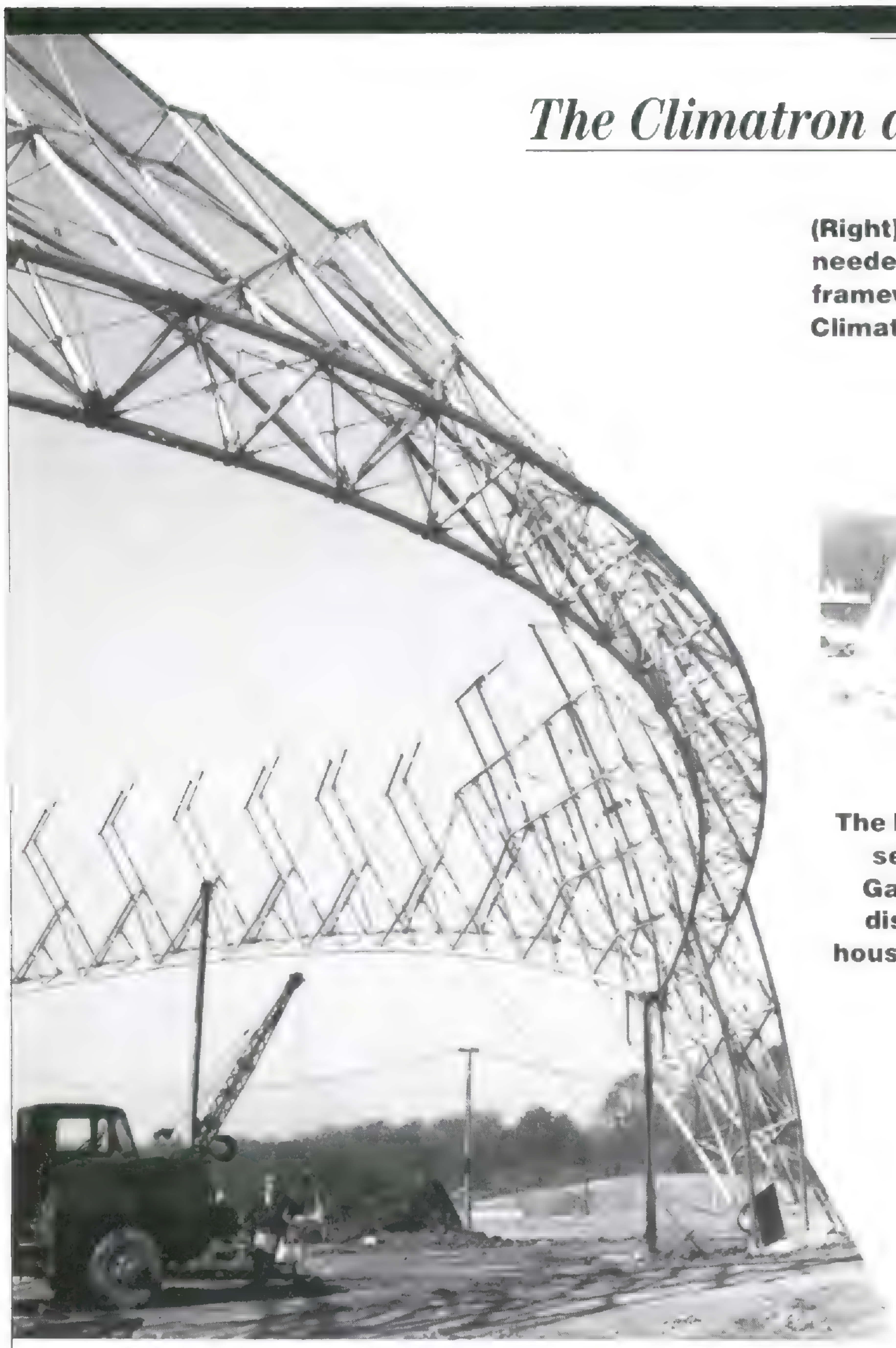
IT was an incredible sight! On August 1, 1959, there was a palm grove standing free in the middle of St. Louis.

The exotic trees were left standing in June of that year, when the Palm House was demolished to make room for a new display greenhouse. Originally built in 1913, the Palm House had deteriorated to the point that it could not be saved practically.

In its place, there would rise a new, futuristic structure with all the advantages that modern design and technology could build. It would be based on the innovative geodesic dome design developed by R. Buckminster Fuller, so that no supports would mar the interior space of the structure. It would utilize aluminum as framing to avoid the rusting problems of steel. It would use modern plastic materials as a skin to allow more plant nurturing light to enter the building. It would also be both heated and air conditioned to protect its interior treasures from the extremes of St. Louis weather.

Many inventive minds and skilled hands gave their best in the following months to bring the great experiment to reality. Dr. Frits Went,

The Climatron at 25



(Above) Building a geodesic dome is a little like assembling a giant Erector set.

(Right) Special rigging was needed to erect the supporting framework for the Climatron.

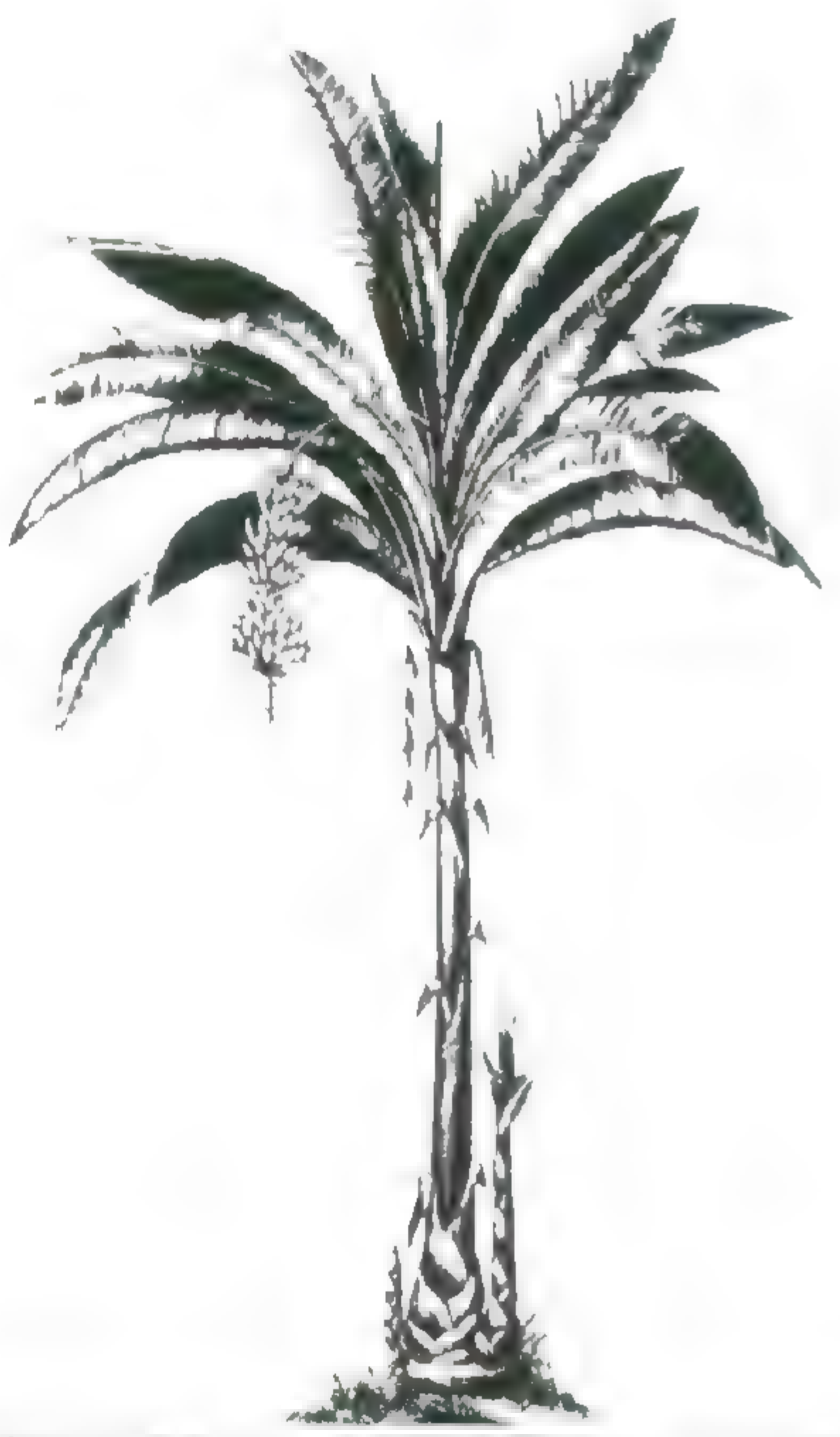
(Right) The Palm House served as the Garden's main display greenhouse from 1912 to 1960.

director of the Garden at the time, provided the name Climatron, coined from "climate controlled," after rejecting suggestions such as "Floradome," "Silverium," and "Plantosphere." St. Louis architects Murphy and Mackey developed the plan. The Rallo Construction Company was the local contractor. Loyal Garden supporters, individuals and companies, provided the funds.

The result was a truly inspiring display of modern technology and exotic plantings. Changing temperature gradients and directions allowed for the maintenance of different climates within a single enclosure. One area creates the environment of a low-land jungle, another an oceanic climate like Hawaii, another the dry tropics typical of India, and yet another a tropical mountain forest.

In October, 1960, the Climatron was dedicated "to American Science, to the people of America, and especially to St. Louisans." For 25 years it has been a proud symbol of all three.

For a more complete discussion of the history and construction of the Climatron, be sure to attend a slide show and lecture by Kenneth Peck, former Garden employee and currently technical advisor to the A. H. Hummert Seed Co., and view a display of exciting historical photographs and tidbits of information prepared by Garden volunteers and staff and the Members Board on October 13, during the Climatron's birthday party.



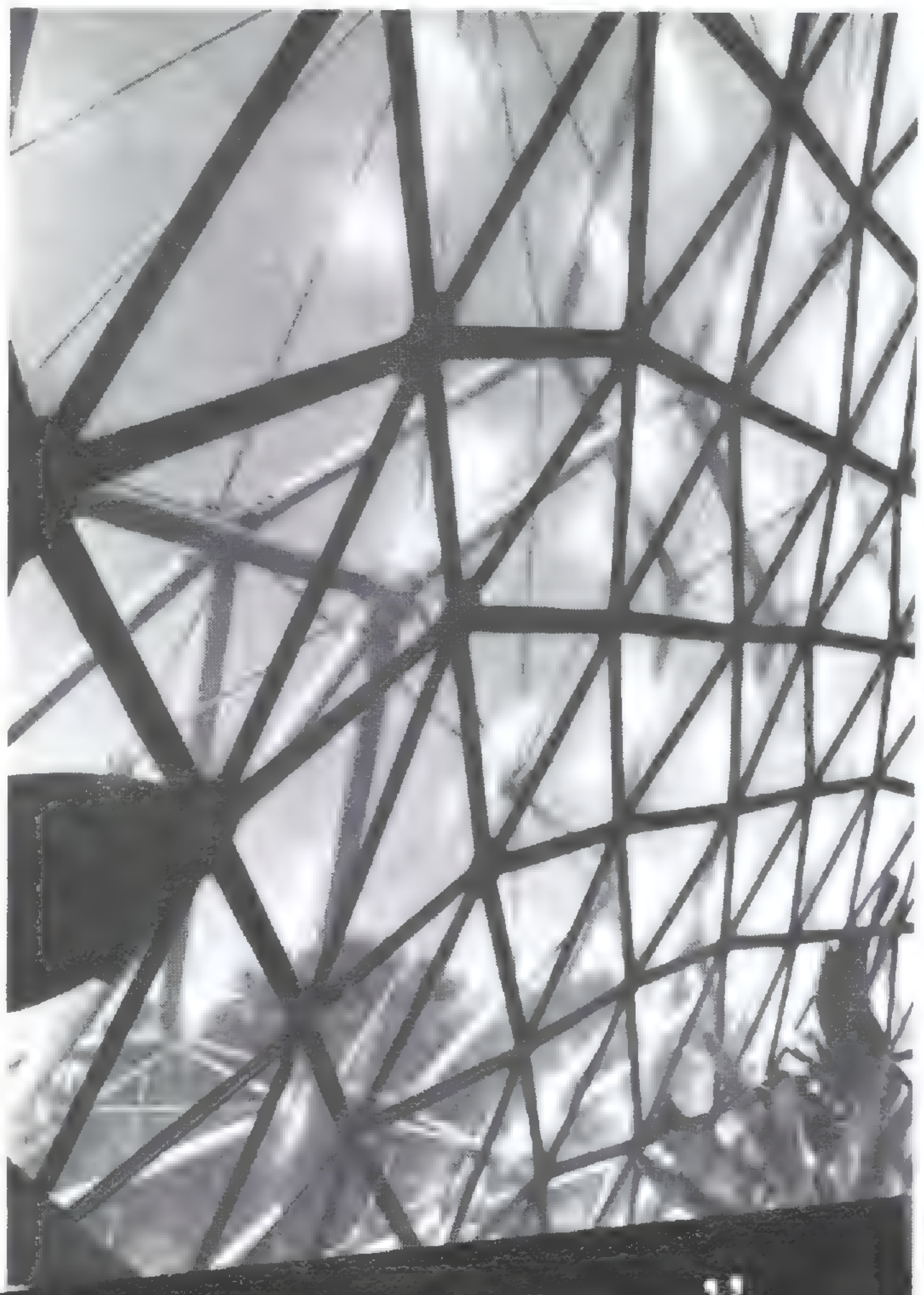
Plans Being Made for Renovation

The first draft of the master plan for the Climatron has been completed by Environmental Planning and Design (EPD), the Garden's landscape architecture firm.

"The study has had several goals," said Geoff Rausch of EPD. "First we want to provide a solution to the physical and mechanical problems in the Climatron. Second, we want to redo the display inside to make it more appealing and understandable to visitors."

The physical problems of the Climatron are many, with the most obvious being that the plastic skin has deteriorated, causing leaking and limiting the amount of sunlight that can penetrate into the planted area. There is also

(Below) A workman inserts one of the many plastic windows in the dome.



Play the "Pane Game"

How many Plexiglas window panes are in the Climatron's dome? Visitors to the Garden during the month of September will have an opportunity to answer that question and a chance to win a family size "dome" tent from Venture or a gift certificate from the Garden Gate Shop. Contest entry blanks and complete rules available in the Climatron. Sorry, no phone or mail entries.

poor air circulation inside the dome which promotes the spread of disease to the plants. In addition, the plastic skin does little to insulate the building from the elements so the Climatron is very expensive to heat and cool.

Another concern of the Garden staff is that St. Louis' water is very alkaline and cold which is potentially harmful to the tropical plants on display. In addition, over the years the electric controls and lighting systems have become corroded and outdated.

At this time, EPD has some of the answers to these problems and is pursuing others. The biggest problem has been finding a suitable material to replace the Plexiglas skin of the dome. EPD engineers have recommended a type of glass which has a special membrane between two layers of glass that will reduce the amount of heat passing through the structure at night. The material will not discolor and, because it will be necessary to reinforce the aluminum framework holding the glass, leakage caused by flexing will be eliminated.

EPD is also developing a plan to treat the water to bring it to an acceptable Ph level and temperature prior to reaching the plants. The electric panels near the entrance will be moved to a lower area and upgraded with more modern and efficient controls.

EPD is also looking at ways to improve the front door to make it more architecturally compatible with the rest of the building and accessible to the handicapped.

The aesthetic part of the study contemplates a new interior design. In general, an attempt will be made to create a display in the Climatron that will give visitors the feeling of being in the rain forest and help them see and understand the beauty and fragile character of that area. Circulation through the exhibit will allow displays of the forest floor as well as the tree canopy. When visitors leave the Climatron they will have discovered the unique qualities of the rain forest, gained an appreciation of it, and will have become aware of the great loss that is occurring with its devastation.

EPD will be working to complete the plans over the next several months. Details of the plans will be announced as they become available.

Climatron Birthday Party October 13

The Climatron, perhaps the most visible symbol of the Missouri Botanical Garden, is celebrating its 25th anniversary on Sunday, October 13, from 11 a.m. to 5 p.m. Garen Members and the public will be treated to an entire day of festivities in honor of this momentous occasion.

Special events scheduled for the day include: a giant birthday cake to feed 2,500 people; tropical flower arranging; a live exhibit of tropical reptiles; free citrus plants to the first 2,000 children; slide shows; lectures; exhibits; movies; and much, much more. See schedule below for complete details.

25TH ANNIVERSARY CELEBRATION SCHEDULE

11:00 a.m.

Climatron tours begin and run every 30 minutes until 5:00 p.m.

2,000 free plants to children under 12 years of age until 5:00 p.m., Beaumont Room.

Economical plant display until 5:00 p.m., Climatron.

Photo display on Climatron construction and future until 5:00 p.m., Monsanto Hall.

John Fuller's weather station until 5:00 p.m., Beaumont Room.

11:30 a.m.

Tarzan movies run continuously in Missouri and Botanical Rooms.

12:30 p.m.

Tropical flower arranging demonstration in Orthwein Floral Hall by Barbara Brundage.

1:00 p.m.

Slide show and lecture on Climatron construction in Shoenberg Auditorium by Ken Peck.

Clowns with balloons until 3:00 p.m.

2:00 p.m.

Official birthday ceremony and cake cutting.

Announcement of winner in Climatron "Pane Game."

3:30 p.m.

Tropical flower arranging in Orthwein Floral Hall by Barbara Brundage.

4:00 p.m.

"Snakes of the Tropics" in Shoenberg Auditorium by Dave Bockenfeld.

Gardening In St. Louis

Mum's the Word

WHEN YOU THINK of mums many things come to mind—a beautiful fall flower, an easy-to-grow and colorful garden plant or an inexpensive year-round florist crop. All these things are true of today's cultivated chrysanthemum.

A relative of the dandelion and sunflower, this Asian wildflower was cultivated for 2,500 years by the Japanese before being brought to the United States two hundred years ago. The flower, which became the national flower of Japan in 910 B.C., was only a simple daisy-like flower. What appears to be a single flower is actually a composite of hundreds of tiny flowers, called florets. Think of the daisy, the florets along the outer edge with a strap-like petal are the ray florets. Disc florets are generally short and make up the eye of the daisy. These two flower types on one flower head provide an excellent opportunity for diversity in hybridizing.

To date, 13 distinctly different forms and hundreds of varieties are recognized by the National Chrysanthemum Society, Inc. The variety is amazing and sometimes confusing. Mums can range from the Single, a simple, daisy-like flower, to Spider, a relatively flat exotic flower with long tubular petals, to the Chinese Incurve, most often referred to as the Football mum.

There are many excellent chrysanthemum varieties. Selecting from the hundreds of varieties available can be challenging. First, consider the site. Will the plant be grown inside or outside? Often you will hear mums called "garden mums" or "florist mums." They aren't actually classifications but refer to plant hardiness. Garden mums, sold at nurseries and florists, are hardy in the areas sold, where florist mums won't survive the winters unprotected. If sending a gift plant from a florist, specify garden mums if the recipient will plant it outside. The second consideration is mature height. Generally, plants vary in height according to class though there is some variation. Check catalog listings for mature height before purchasing. Flower form and color are personal tastes. Within each class just about any color is available, so check the chart for the flower form and flowering period to suit your needs and wants. A few of each class are grown for the Fall Flower Show each year at the Missouri Botanical Garden.

Culture

Over 4,000 garden and greenhouse mums are being prepared for the 1985 Show, November 2 to 24. Most of these varieties were shipped as rooted cuttings from nurseries early in the year. Not only is this more economical than growing them ourselves, but many of the best varieties are patented and cannot legally be propagated except by certain growers.

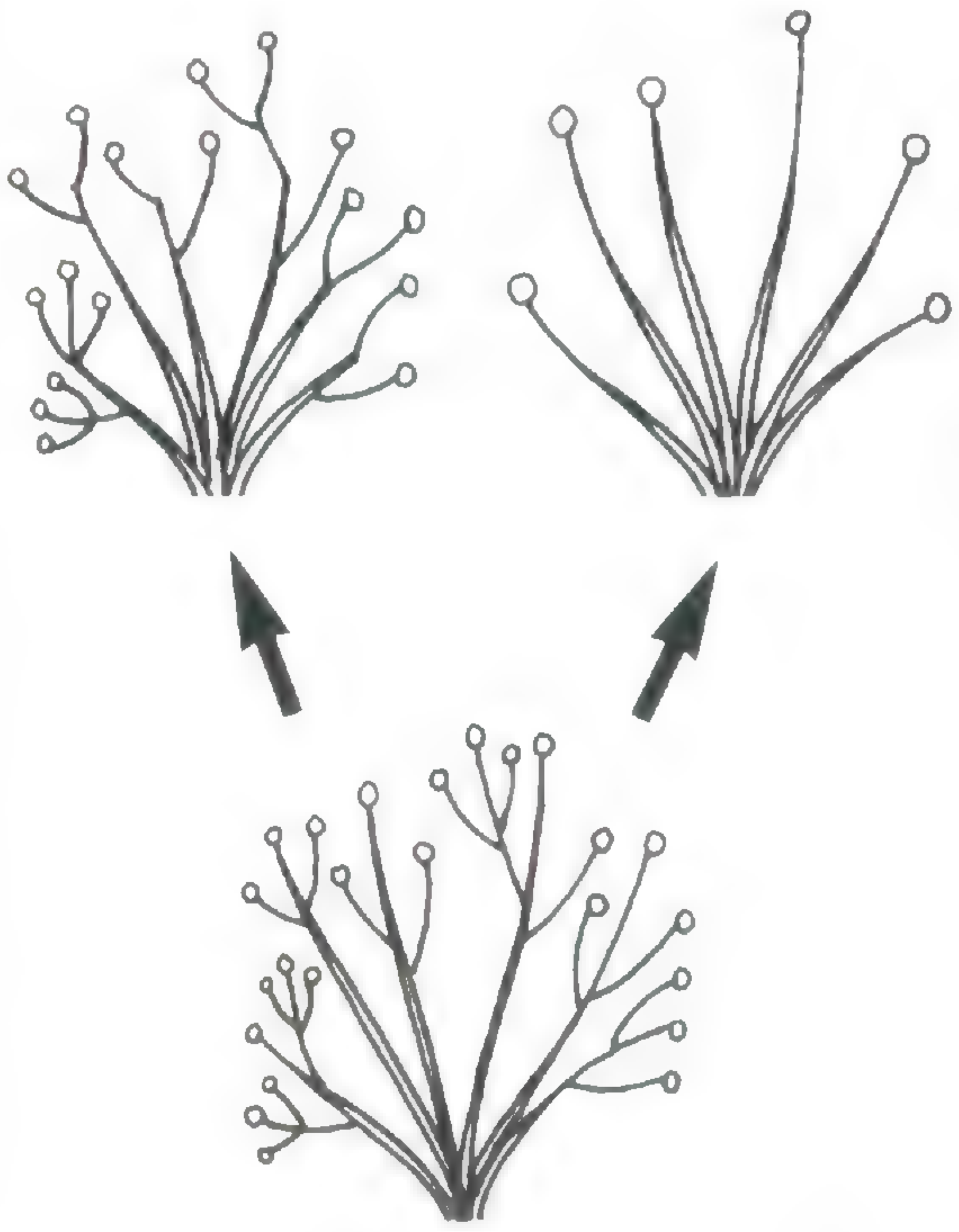
Cuttings arrive in late spring and are potted into 6″ pots. Small bedding plants are also available at this time. They can be treated alike. Since mums are heavy-feeders, plants should receive an application of a slow-release fertilizer such as Osmocote 14-14-14. This is in addition to a weekly regime of a complete water soluble fertilizer such as Peter's Special 20-20-20. In a week, plants will be established and should receive an overall light pinching. This is a rather mysterious garden task but once the practice is understood it is quite easy.

There are three different ways to pinch: 1) maintenance pinching, 2) terminal pinching or center-budding, and 3) lateral pinching or disbudding. Maintenance pinching is a light overall pinch which may or may not include the terminal end meant to encourage a dense, full plant. This generally only removes the very tip of each stem and shoot, leaving a minimum of 2-3 nodes on each stem. This is the pinching technique used most often.

Sources vary on when to quit pinching. Some say late June, others never past mid-July. With a little understanding of how the plant flowers, it is easy to determine when to quit pruning. Mums are photoperiodic, flowering in response to the length of darkness (either short or long). They are short-day (long-night) plants, requiring 9-13 hours of darkness to set flower buds (depending on the variety), which naturally occurs in the fall. So by waiting until September to quit pinching, the mum will remain as compact as possible and flower all at the same time.

Terminal and lateral pinching occurs only when pinching out flower buds and determines the number and, to some extent, the flower size.

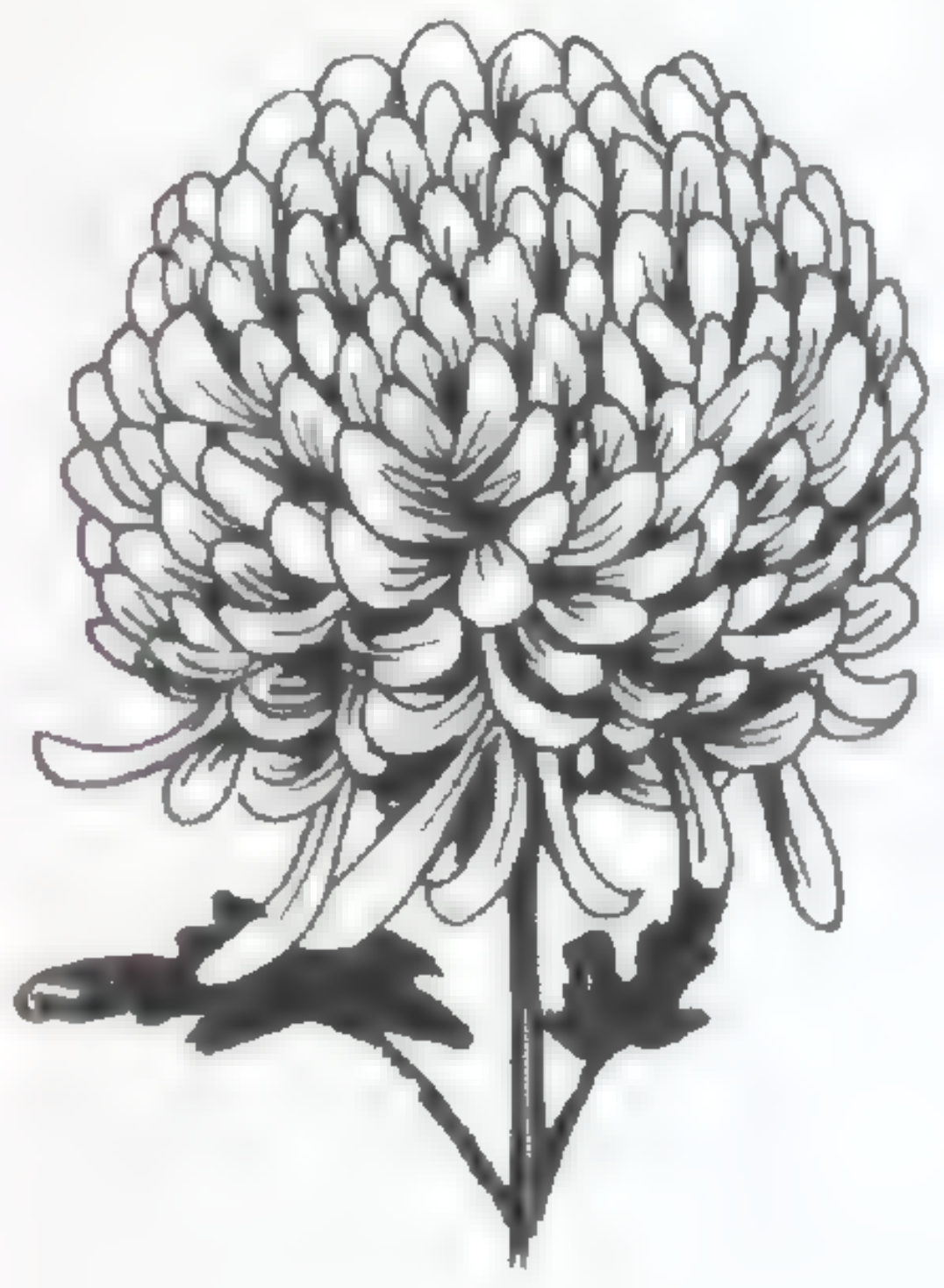
On small flowering mum varieties, center-budding is used to produce a spray of flowers. The terminal flower bud is pinched out, hence the name. For relatively large flowers with only a few on a plant, disbud. This removes all of the side buds, encouraging the plant's energy into a relatively small number of flowers. Care should be taken with the buds left on a plant since no new ones will grow should they become damaged.



Sufficient water, weekly fertilizer applications, and weekly pinching is all the care garden mums require after they are moved up to permanent containers or their spot in the garden. Some gardeners apply a growth retardant one to two weeks after they quit pinching. This prevents long node development and encourages flowers to form just above the leaves rather than on long leafless stems.

Visit this year's Fall Flower Show for new growing ideas and unique varieties.

—BobbiJo Jarvis,
Public Horticulturist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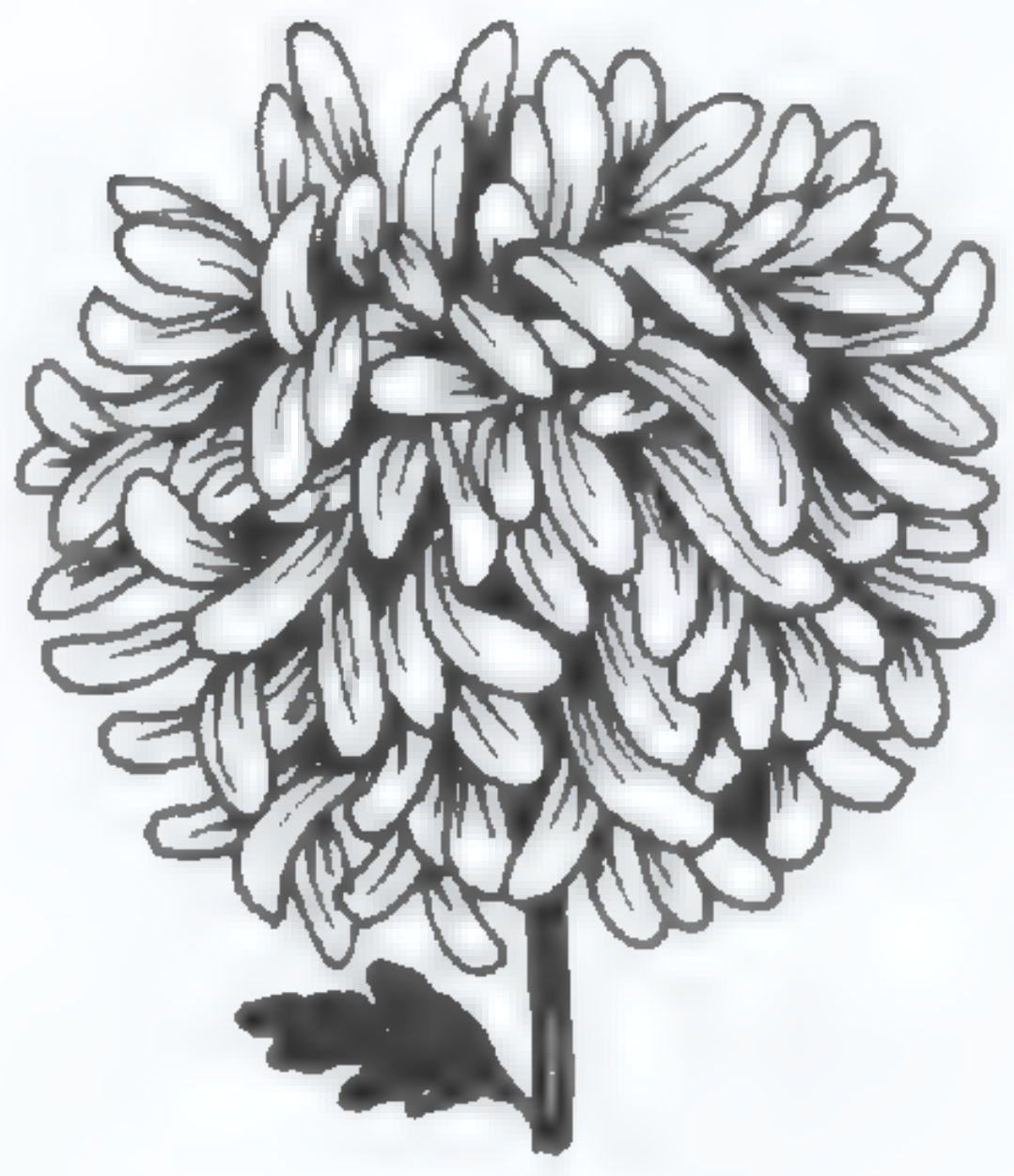
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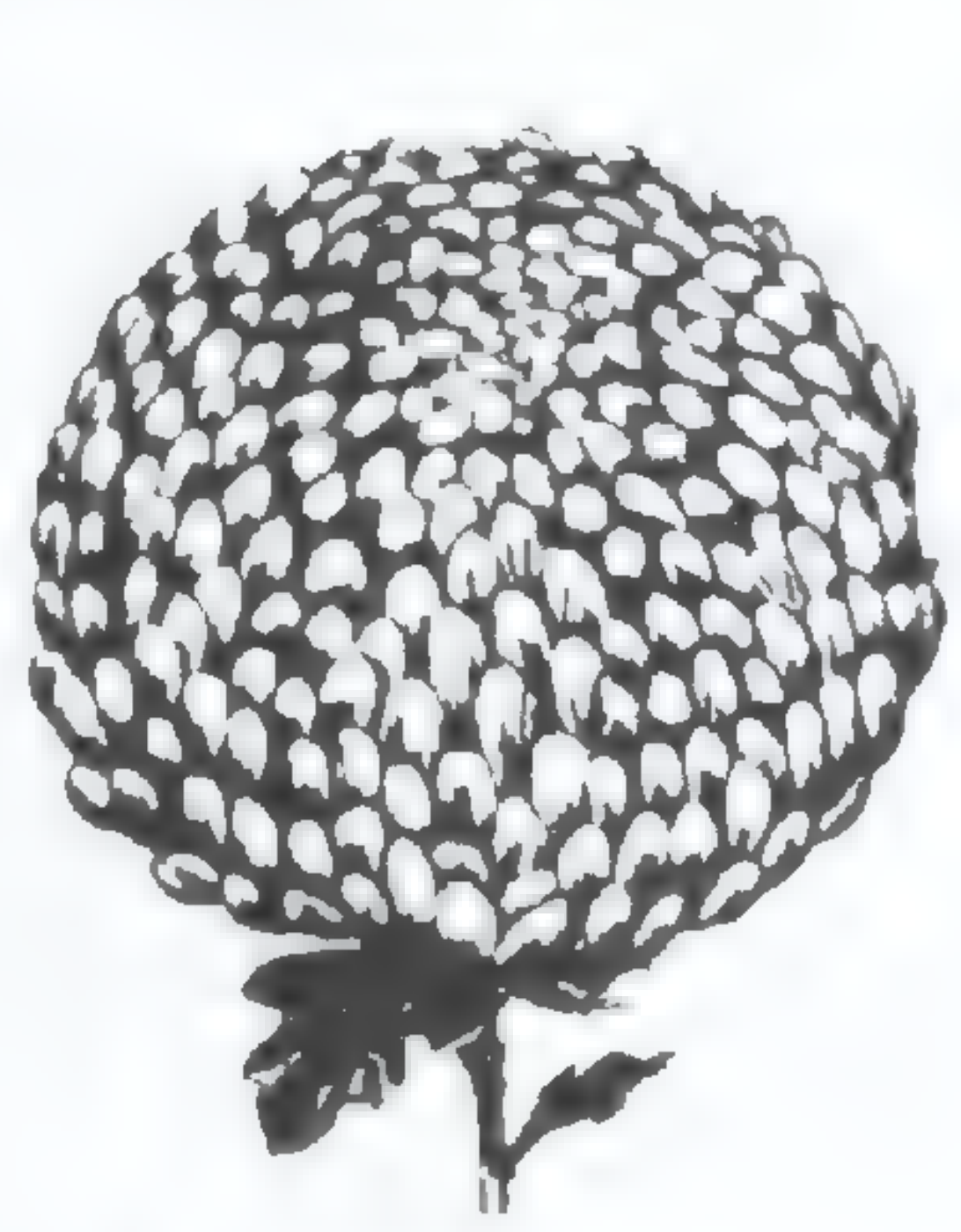
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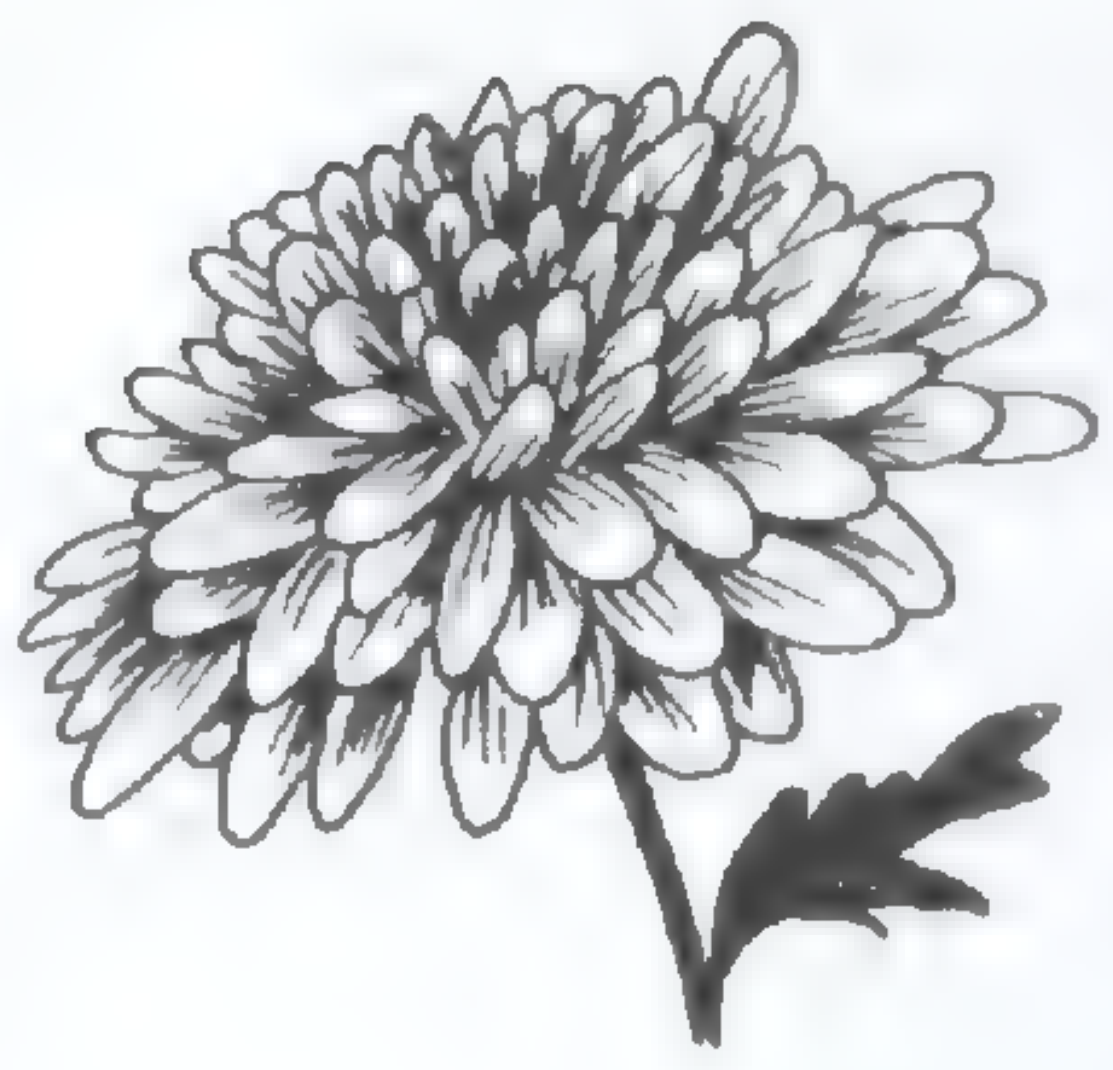
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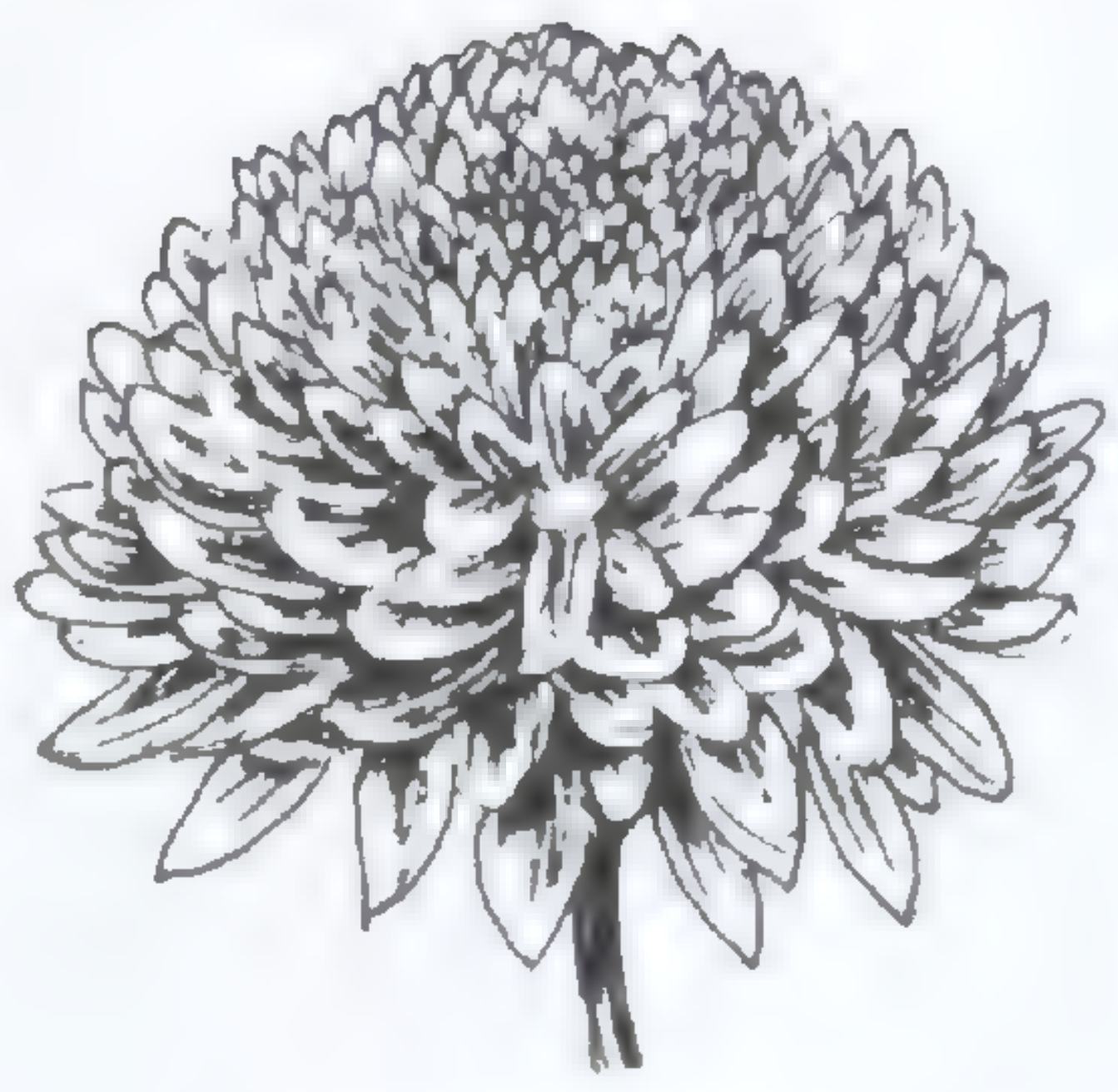
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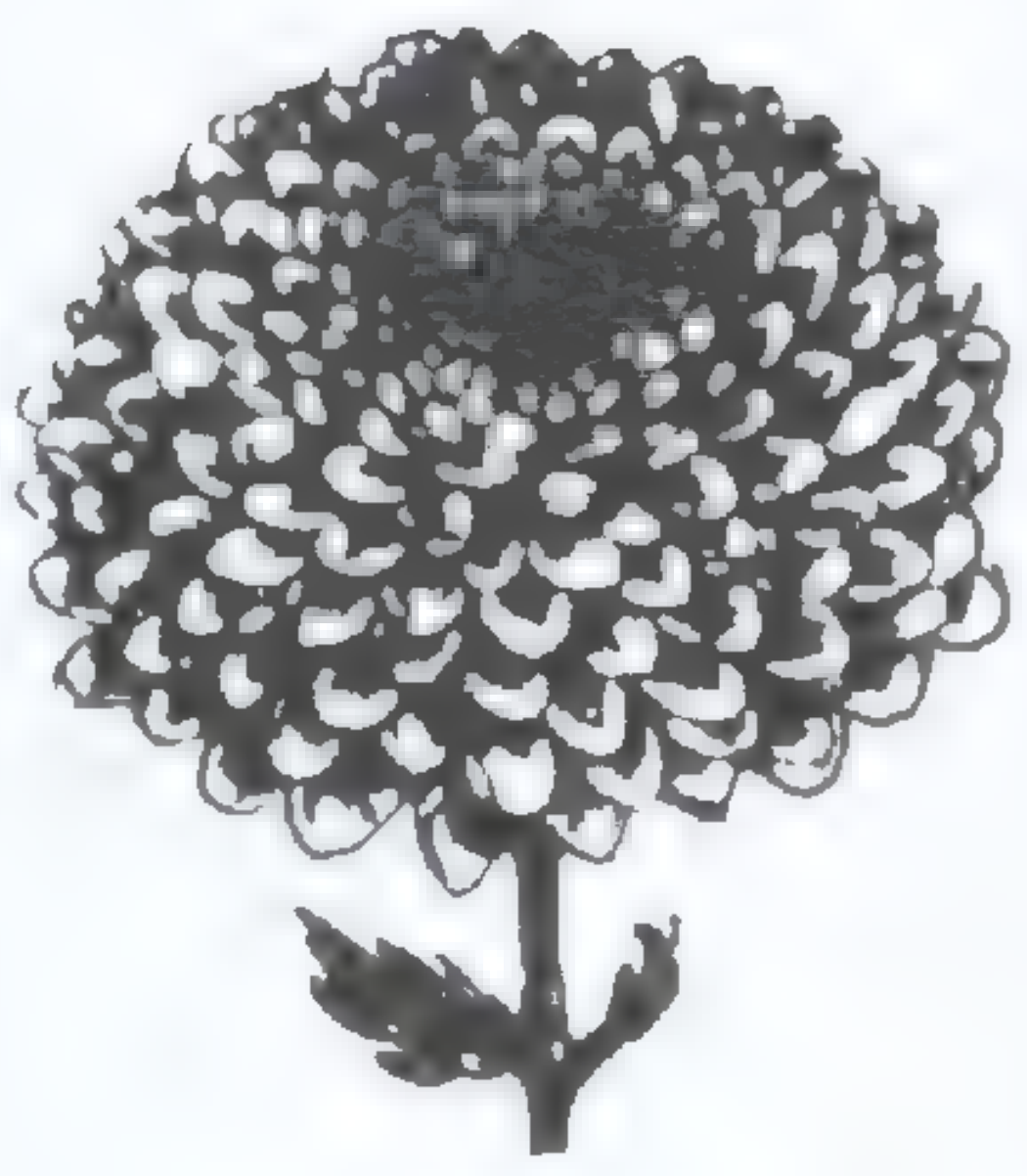
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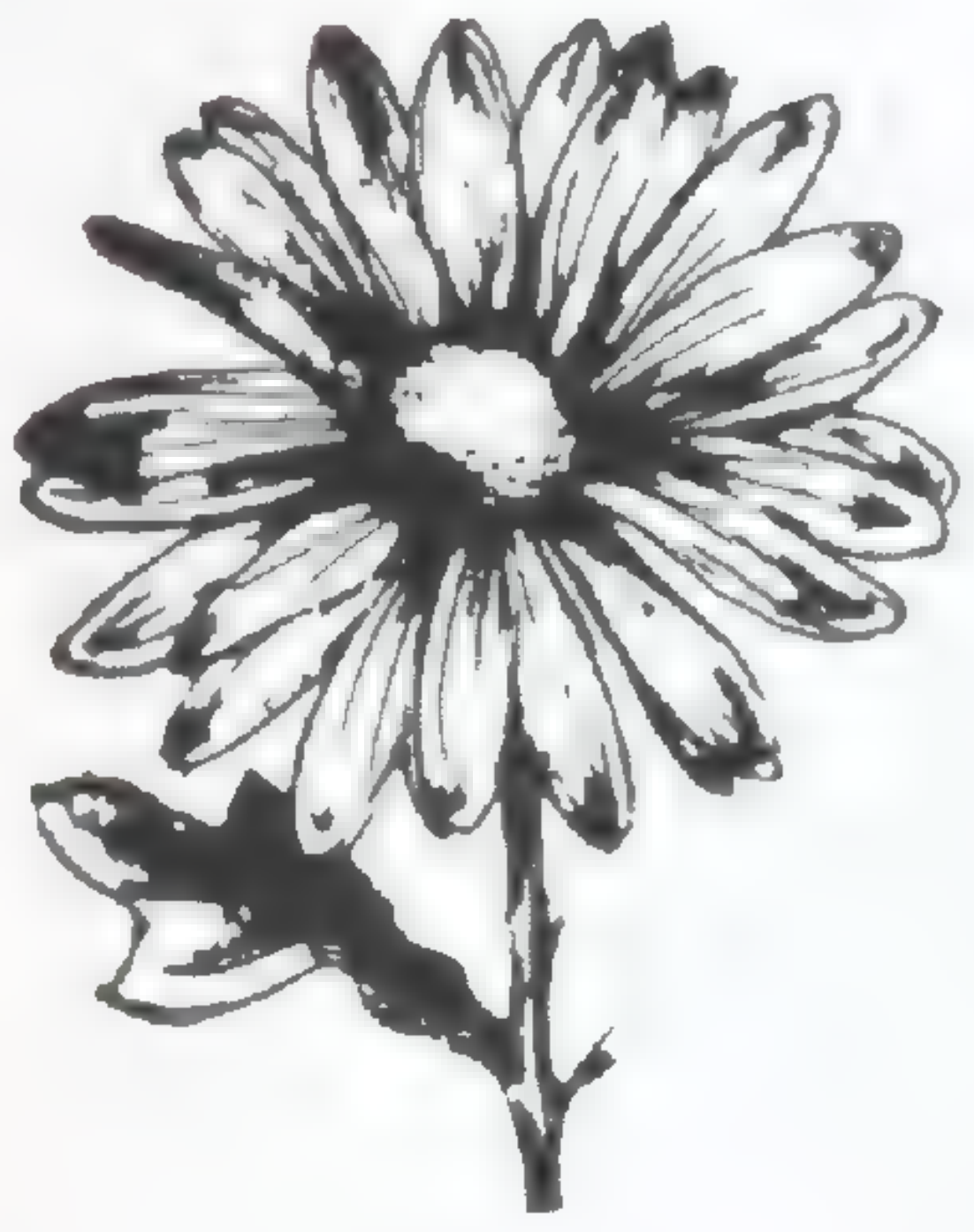
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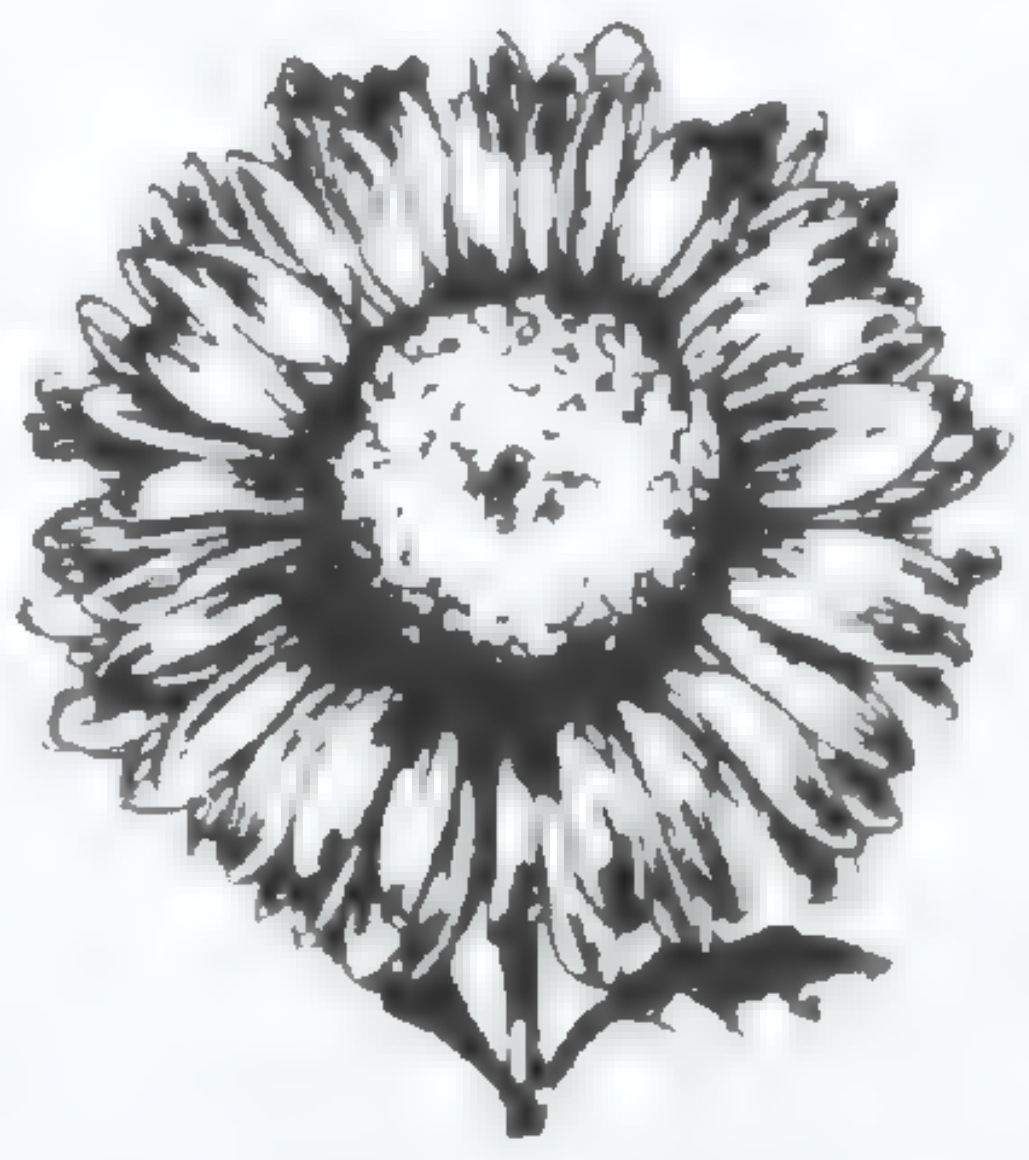
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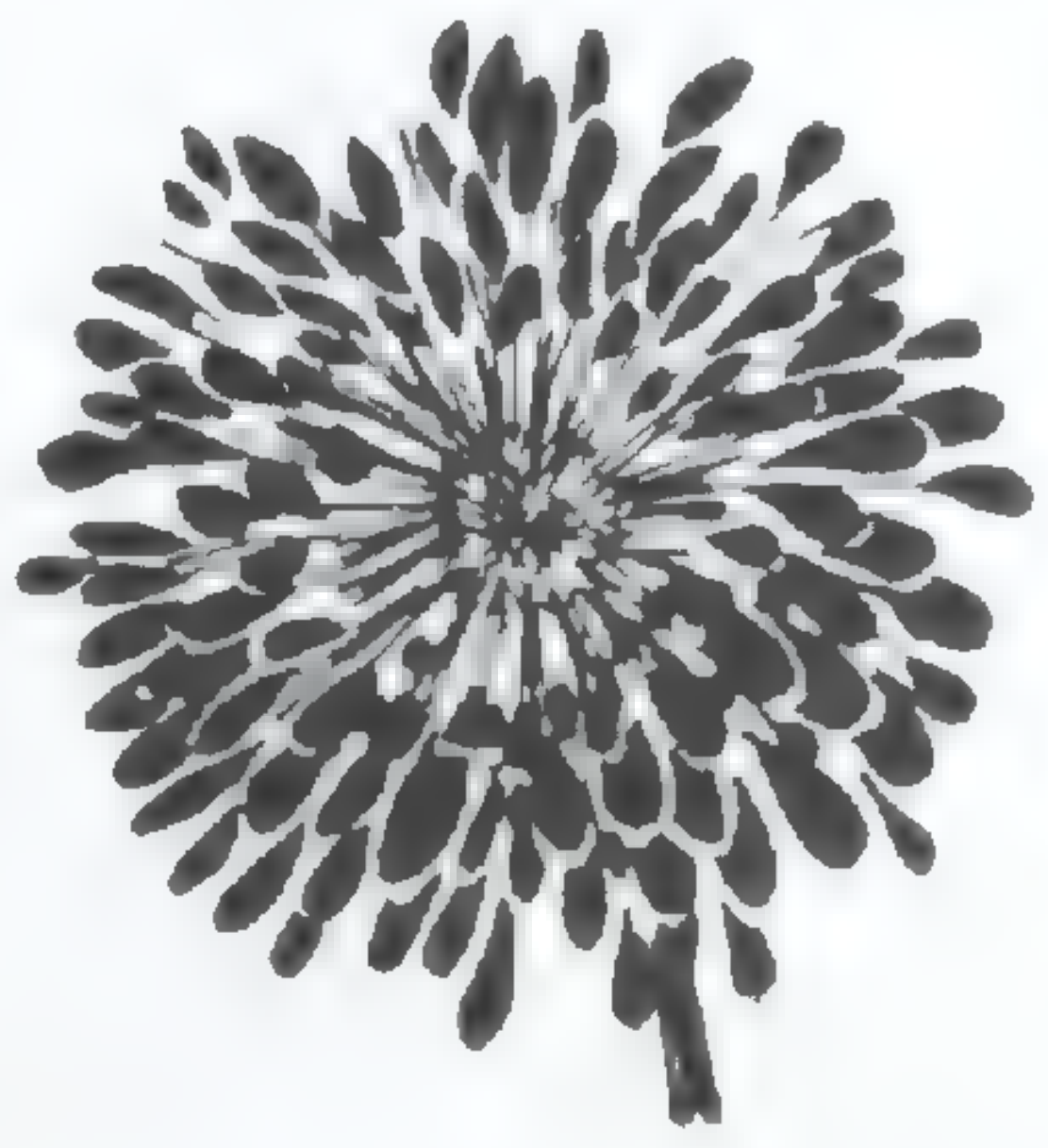
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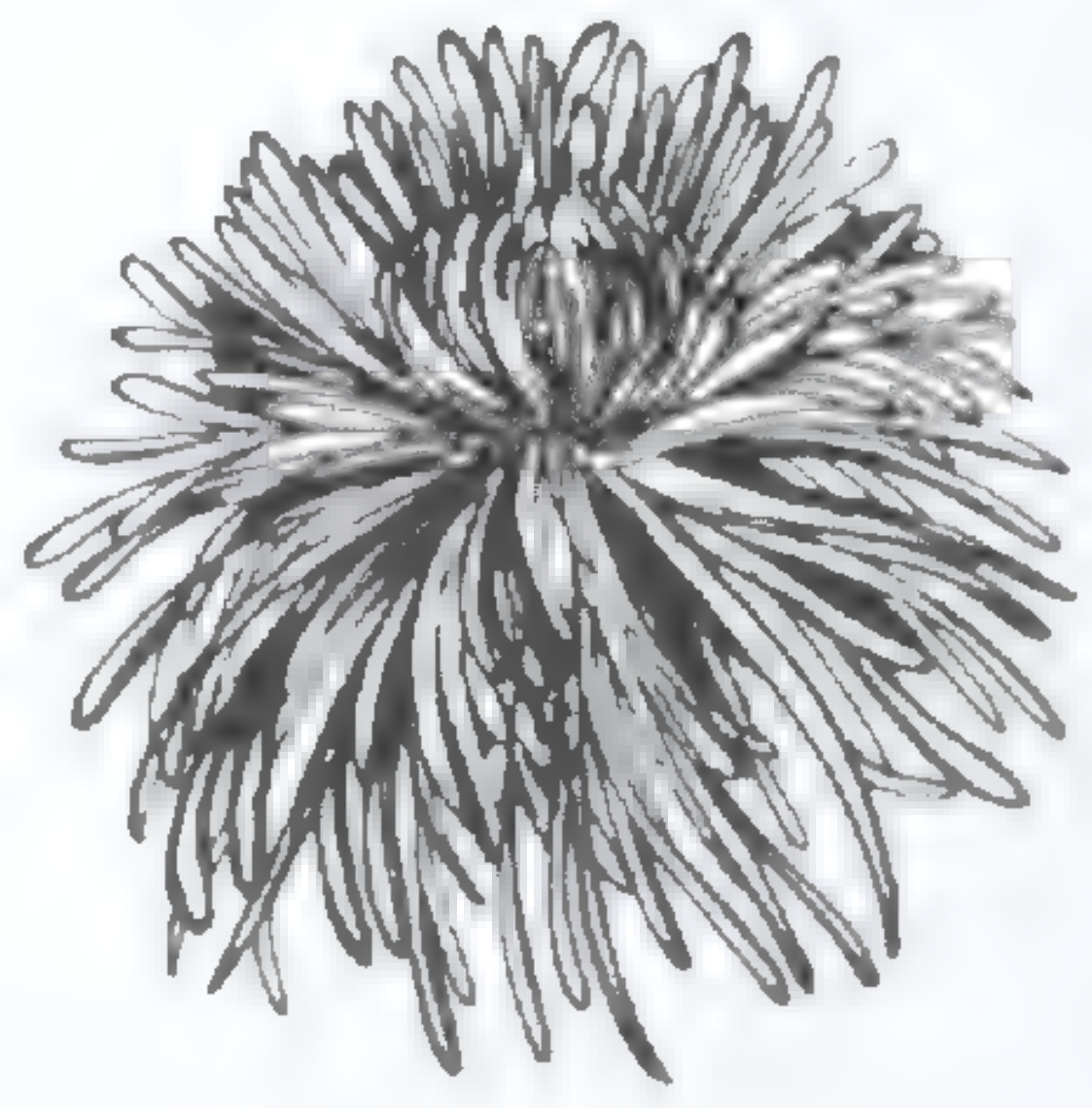
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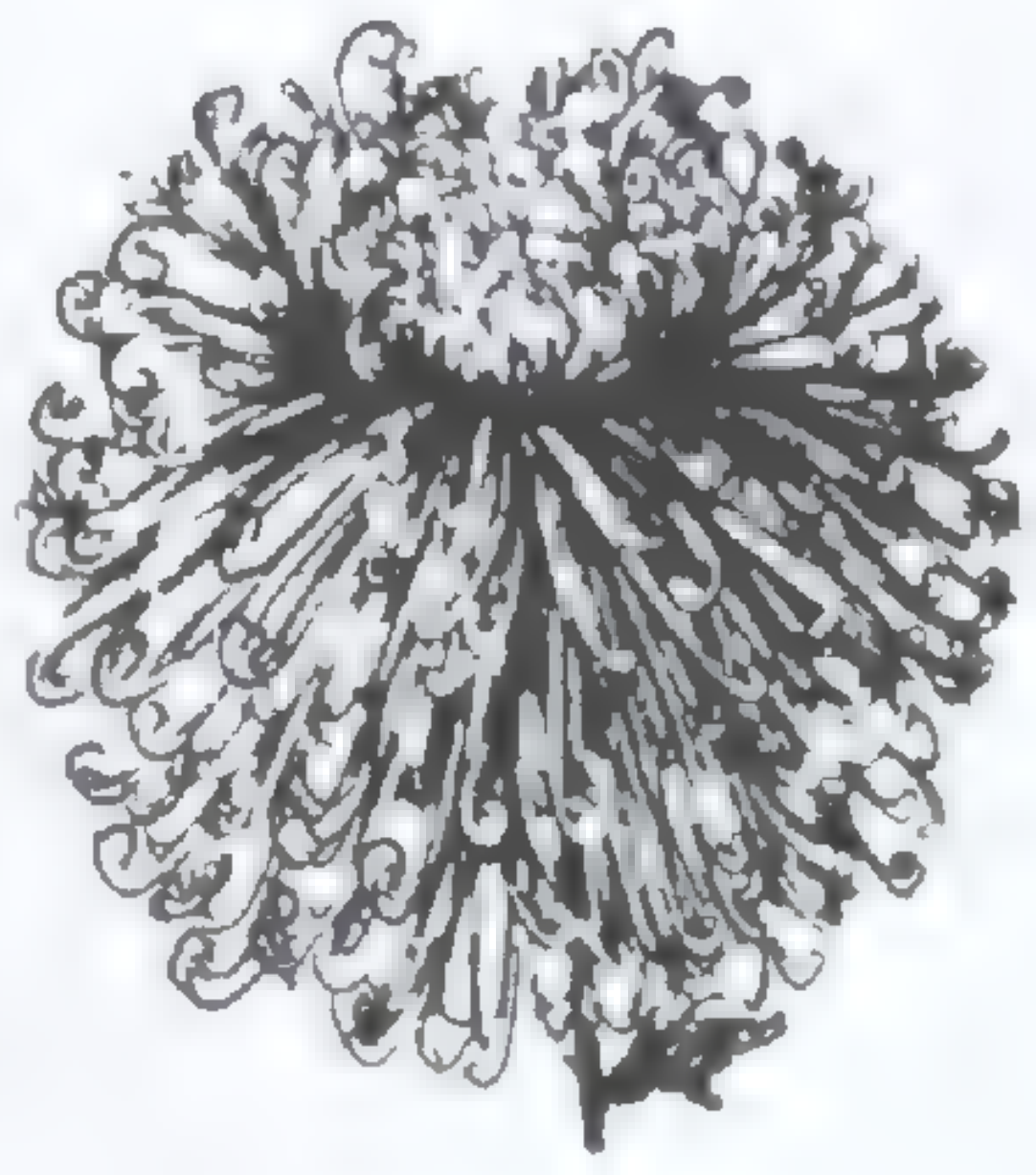
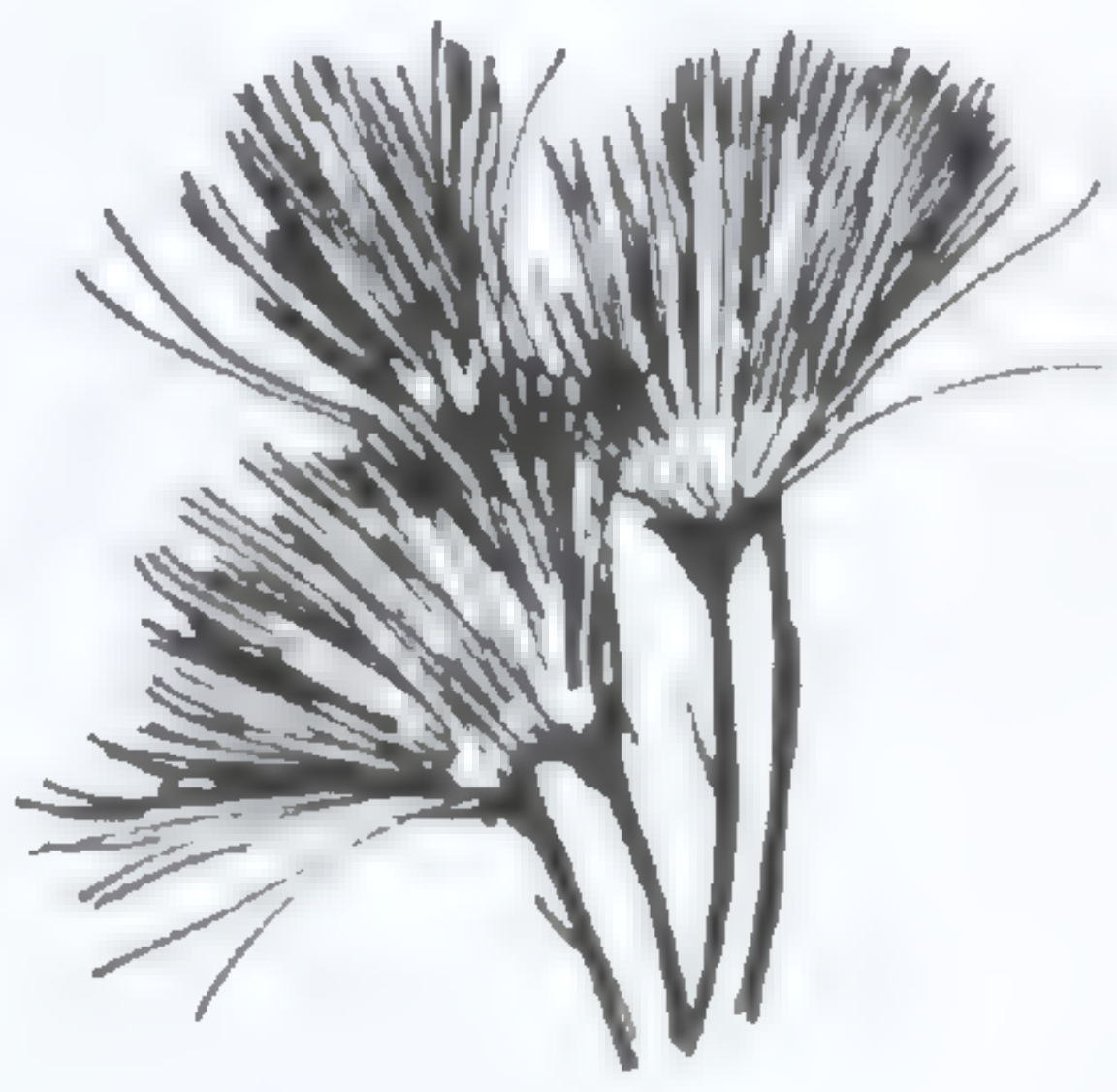

11. SPIDER


12. BRUSH OR THISTLE

CLASSES	FLOWER FORM	SIZE	SEASON
1. **Irregular Incurve**	Largest of mum varieties. Rather loose, informal appearance, with lower petals drooping. Needs to be staked.	A	M
2. **Reflex**	Large durable flower. Needs to be staked.	A,B	E
3. **Regular Incurve**	Football mum, a compact flower with 3–5 flowers / plant. Needs to be staked.	A,B	M
4. **Decorative**	A flattened full bloom. A good cut flower and garden mum. May need support.	A,B	E,M
5. **Intermediate Incurve**	Incurving but loose flower form, may need support.	A,B	E,M
6. **Pompon**	Mass of small blooms. Small miniature buttons to large ball shaped flower. Good for cut flowers.	B,C	M
7. **Single**	Daisy-like spray, small flower or a few larger blooms.	A,C	M
8. **Anemone**	Single-like but more pronounced center. May need support.	A,C	M
9. **Spoon**	A daisy-like flower with spoon-like ends to florets. Interesting form.	A,C	M
10. **Quill**	Tubular florets like spoon but not flattened on the ends.	A,C	M
11. **Spider**	Fujii mum—the most exotic, with thin threadlike florets, tubular ends are coiled.	A	M,C
12. **Brush or Thistle**	Unusual, broom-shaped flower. Doesn't open flat, excellent filler for arrangements.	B	M
13. **Exotic**	Varieties that don't conform to any one form.		

SIZE: A *Large blooms—disbud;* **B** *Medium-large blooms—disbud;* **C** *Small flowers—spray*

SEASON: E *Early season—Sept.-Oct.;* **M** *Mid season—Oct.;* **L** *Late season—Oct.-Nov.*

Report On Membership Survey

In April, the Membership department sent a survey to a random sampling of the Garden's Members. The survey was designed to find out who you, the Garden's Members are, why you joined and how you feel about the Garden. You responded in an overwhelmingly positive fashion. In this issue of the *Bulletin* the portion of the survey addressing questions that related to the Membership Program are addressed. In a later issue we will present a Member profile.

The Garden enjoys a very loyal constituency. Very importantly, 20% of you have been Members for 10 to 20 years or longer; 50% have been with the Garden for 3 to 10 years; and 20% are newer. Of the Garden's Members, most are Regular Members, while 20% enjoy the added benefits our Supporting Memberships offer.

The "beauty of the Garden and its displays" is the most frequent reason for becoming a Member, followed very closely by "an interest in plants and gardening," "to support a local institution," and "love of nature."

Most Members first become a Member as a result of an offer received in the mail. Others join while visiting the Garden, at the recommendation of a friend or receive the membership as a gift. The satisfaction of supporting a worthwhile institution is seen by many to be the greatest benefit of being a Member. Free admission, invitations to flower show previews and the *Bulletin* are other benefits important to our Members.

Members enjoy the Garden often—60% visit three to nine times a year, while 20% visit ten to 20 times a year. Members primarily visit to enjoy the serenity and beauty of the Garden. Flower shows, special events, and sales at the Garden Gate Shop are other popular reasons for visiting.

In the next report a Member profile will be featured. The Membership Department is grateful to all those Members who participated in the survey. A few quotes from our Members . . .

"The Garden is a magnificent place!"

"The Missouri Botanical Garden is a place I'm always proud to take out-of-town guests to visit."

"I enjoy the Garden Gate Shop. I can always find unusual presents."

"The Garden is the single greatest (and unique) asset in the metropolitan area. It is a year-round source of pleasure and pride. . . ."

"I have visited the Garden since early childhood. I am now 83."

Upcoming Members' Events

Don't forget to include these special Members' activities in your plans:

- **Sept. 5**—Preview of the National Geographic Society Rain Forest Exhibit. Director Peter H. Raven will speak.
- **Sept. 12 & 13**—Members' Preview of the Fall Plant Sale. *Members receive a 20% discount on these days.*
- **Oct. 13**—The Climatron Birthday Party. Come celebrate 25 years!
- **Nov. 1**—The Members' Preview of the Fall Flower Show.

Also, start thinking about giving a membership to the Garden to friends and familiy for a holiday gift. If you have given the "Gift of the Garden" in the past, you'll have an opportunity to give again this holiday season. Watch for a notice in the mail.

JACL Supports Festival, Garden

The Japanese American Citizens' League (JACL) has long had a special relationship with the Missouri Botanical Garden. It was Sam Nakano, then head of the Garden Committee of the JACL, who first approached the Garden about creating a Japanese Garden. Ed Tsugita has also helped to organize support throughout the years. In addition to continued moral support, the JACL has provided the Garden with a generous financial contribution for which we are deeply grateful.

MEMBERS RAISE FUNDS FOR LEHMANN BUILDING

In April of this year, we sent a mailing to you, our Members, asking your help in raising funds for the upcoming renovation of the Garden's research facility, the John S. Lehmann Building. We are proud to report that, as of June 30, we had received almost $33,000 from 565 of our Members, as a direct result of the mailing, and contributions are still arriving. We are extremely grateful for this wonderful show of support and want you to know that these numbers are significant.

Gifts received from the Members are being used to match a challenge grant from the National Endowment for the Humanities for the library portion of the work. This $85,000 NEH grant must be matched on a three-to-one basis by privately raised monies and show that we enjoy a broad base of support for the project. With your help and that of a number of other very generous individuals, foundations and corporations, we have reached our matching goal and we can show with pride the required evidence of broad-based interest in and approval of the project.

Your generosity during this campaign will help the Garden stay the world's foremost center in tropical botany.

Kresge Foundation to Support Renovation

The Garden has been awarded a $350,000 grant from the Kresge Foundation of Troy, Michigan toward the renovation of the John S. Lehmann Building. Of 1,369 proposals received, 140 grants were awarded. The grant is awarded on a challenge basis, requiring the raising of the remaining funds. This grant brings the total raised for this project to $1.4 million toward our goal of $2.35 million. We must raise the remainder of the funds by August, 1986 to receive the $350,000.

The Lehmann Building opened in 1972 to house our education and research departments. In 1982, the education department moved to the Ridgway Center. The herbarium and library have now reached their capacities and the building will be renovated to turn the education area into research space. The Kresge grant is a major step in reaching our goal for the Lehmann Building.

1986 Travel Opportunities for Members

It's not too early to begin making plans to be a part of Missouri Botanical Garden's Members' Travel Program in 1986. Two exciting tours are being offered:

Costa Rica National Park Expedition—April 5–19
This 15-day expedition will be an excellent introduction to the tremendous diversity of habitats and wildlife in Costa Rica. The trip will include a special look at the superb national parks and preserves of Costa Rica. This trip will be led by one of our curators and a naturalist who will provide an insider's look at the wonderful flora and fauna.

The Gardens of England (*dates to be announced later.*)
This tour during the height of the flowering of spring will take in the most exquisite gardens Britain has to offer. Led by Judy Peil Travel, this trip will be nothing shy of the best and most enjoyable experience.

Make plans to take part in these unique travel experiences. Information on both of these fine trips will be sent to Members. For information or reservations call 577-5108.

Your Chance To "Own" A Piece of the Climatron

During September and October Members will be receiving a once-in-a-lifetime opportunity—a chance to "own" a piece of the Climatron. To begin to raise the large amount of money necessary to renovate the Climatron, we are offering deeds giving symbolic ownership to the panes in the structure. Changing the panes from the current plastic to a new material will be one of the major expenses in the renovation. What a wonderful way to help one of St. Louis' most famous buildings—and the deed would be a marvelous holiday gift for someone who has everything!

12,000 Visitors Given Guided Tours

The Garden Guides gave 875 tours during the first six months of 1985. The newly trained class of 23 guides were ready just in time to meet the capacity crowds of visitors during the most popular tour months of April and May. Almost 12,000 people were given tours.

The Japanese Festival included guided tours daily. A new feature of the festival was for several guides to be in the teahouse wearing kimonos and demonstrating the tea ceremony. Bringing the charming tea house to life attracted large crowds who were intrigued to see the interior and to learn some of the mysteries of the tea ceremony.

Besides giving tours, the guides attend meetings and workshops, read on nature and science, and visit other botanical gardens to become better informed and to be of greater service to the education programs of the Garden. The guides gave 2,755 hours of service to the Garden during the first six months of 1985.

Second Evening Garden Tour Planned

The response to the recent Henry Shaw Birthday Dinner and Garden Tour was so great we were not able to accommodate all Members who expressed an interest.

A second Evening Garden Tour for Members Only has been scheduled for **Tuesday evening, September 17, at 5:30 p.m.** The tour will consist of small groups of Members led by volunteer Garden Guides. Because of the personalized nature of the tour, group size will again be limited.

To reserve a space for the Evening Garden Tour, call 577-5108 between 10 a.m. and 2 p.m. September 10 - 13 only.

ANNIVERSARY POSTER WINS AWARDS

Last year's Missouri Botanical Garden 125th Anniversary poster featuring a bird's-eye view of our beautiful 79 acres won two prestigious national competitions recently.

The American Association of Botanical Gardens and Arboreta presented the Garden with its Dorothy E. Hansell Publication Award and the American Association of Museums bestowed its Award of Merit for the poster.

The poster, which was designed for the Garden by Bob Wachtel and Scott Hueting of HOK, Inc., is available for a limited time in the Garden Gate Shop for $10.

Raven Named MacArthur Fellow

Peter H. Raven, director of the Missouri Botanical Garden, was recently named a MacArthur Fellow. The program provides five-year fellowships to "individuals who show exceptional promise, dedication and capacity for self-direction."

Raven was cited for his studies in biology and systematics of the Onagraceae (evening primrose) family, the co-evolution of plants and animals and for his work to conserve natural resources, particularly in tropical areas where the Garden focuses its research program.

The John D. and Catherine T. MacArthur Foundation, which makes the awards, puts no constraints on the use of the funds. While Raven will use his funds to accelerate his research, he stressed that he will remain as director of the Garden during his fellowship.

To date, the foundation has named 166 fellows in many disciplines including pure and applied sciences, social sciences, literature and the arts and public service. Awardees cannot apply for fellowships but must be nominated by a specially designated group.

SEPTEMBER-OCTOBER

HIGHLIGHTS

SEPTEMBER 8 *Sunday*

Rose Sunday

The last blooming of the year for the Lehmann and Gladney Rose Gardens is always a crowd pleaser. Stir in additional entertainment between 11 a.m. and 4 p.m. and you have an extra special day.

WINTER HOURS START SEPTEMBER 3

Just a reminder . . . The Garden will close at 5 p.m. daily, beginning September 3, through May 25, 1986. Tower Grove House, the Climatron and other public greenhouses will close at 4:30 p.m.

SEPTEMBER 12, 13

Thursday, Friday

Members' Preview of Fall Plant Sale

Bargains are aplenty at the Fall Plant Sale. Now is the time to fill those voids in your garden and stock up when prices are down.

SEPTEMBER 14-20

Saturday-Friday

Botany Field Days

A golden opportunity to get a behind-the-scenes look at the Garden's world-renowned research facilities. Fun and educational activities for the entire family.

SEPTEMBER 22

Sunday

Future in the Wild

Peter H. Raven, director of the Missouri Botanical Garden, introduces World Wildlife Fund—U.S. botanist Mark Plotkin, who will present the fascinating potential of our "Future in the Wild."

CLIMATRON

1960 25 1985

OCTOBER 13 *Sunday*

Climatron Anniversary Celebration

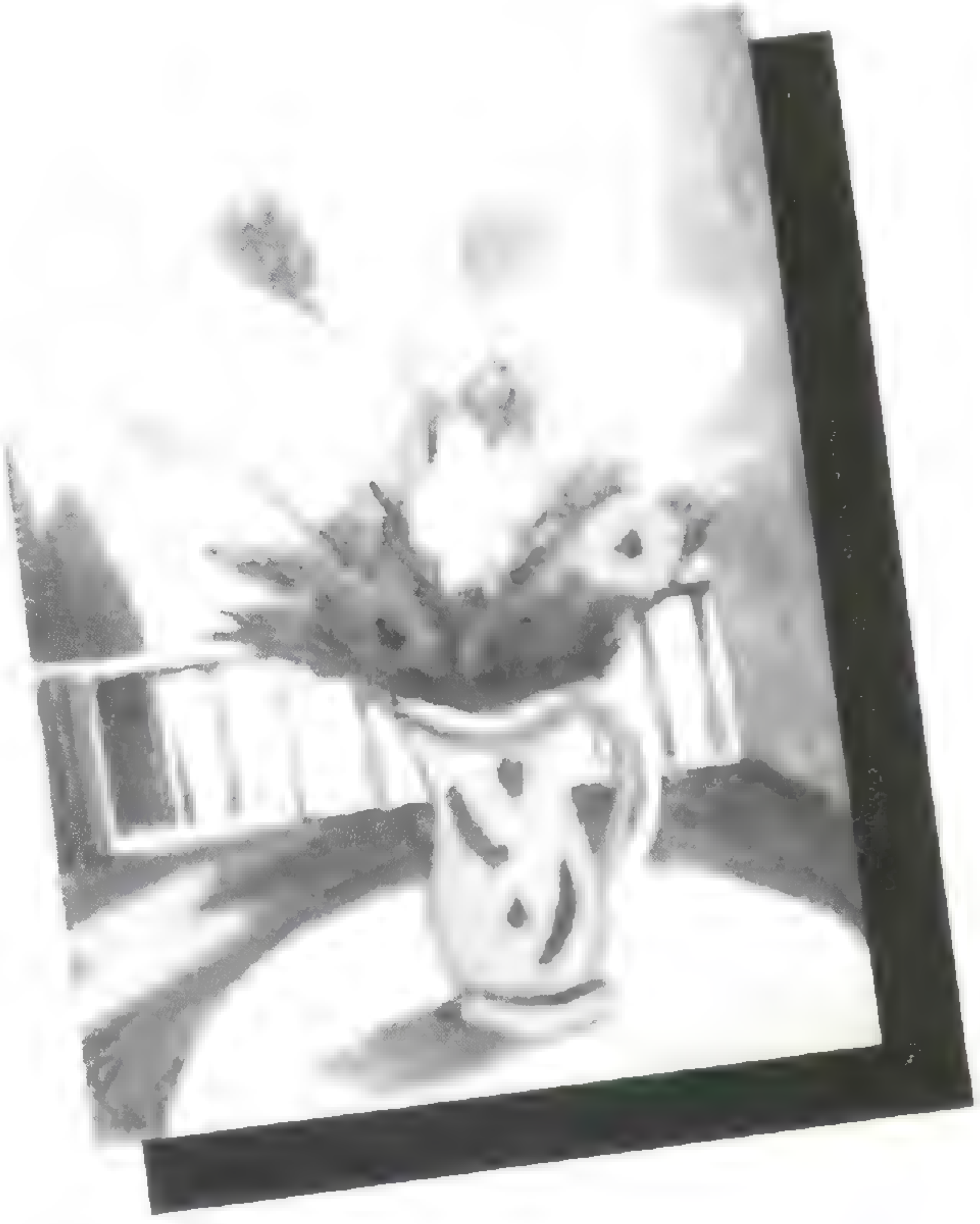
Help us celebrate the 25th anniversary of the Climatron with a host of activities all day long. Some of the scheduled entertainment includes special tours of Climatron; slide shows; lectures; and exhibits of the plants and animals of the tropics. Don't miss the fun!

SEPTEMBER 28, 29

Saturday & Sunday

Dahlia Society Show

The Greater St. Louis Dahlia Society hold their "Show of the Eighties" in the Orthwein Floral Hall of the Ridgway Center. Blooms of all sizes and colors will be transported from as far away as Canada and the West Coast. The dahlias which will be on display range from the "dinner plate" size of 14 inches in diameter to the small pompon of one inch. Visitors to the show will be able to vote for their favorite dahlia of the varieties which will be displayed in the People's Choice section. These blooms will give the viewer some idea of what is in store for them when they view the complete show.



NOVEMBER 1

Friday

Members' Preview of Wallace Smith Paintings

An exhibition of oil paintings by the well-known artist, Wallace Herndon Smith, will open in Monsanto Hall, and run through November 24. One of the largest shows of paintings ever mounted at the Garden, this retrospective view of a career covering more than 50 years previews a national television special of the artist to be shown in early 1986.

SEPTEMBER-OCTOBER

DAY-BY-DAY

SEPTEMBER

8 **Rose Sunday**
Sunday, 11 a.m.-4 p.m. Savor the last blooming of the year for the Garden's two rose gardens. Entertainment, including films on rose bush maintenance, is planned. (*See Highlights.*)

12-15 **Fall Plant Sale**
Thursday through Sunday, regular Garden hours, Garden Gate Shop. A good opportunity to get a great buy on a plant or one of the many bulbs in stock. Members only Thursday and Friday until 6:30 p.m. Receive a 20% discount on all merchandise. (*See Highlights.*)

14 **Rain Forest Photos**
Through October 6, Monsanto Hall, regular Garden hours. Powerful photos by the National Geographic Society of the world's tropical rain forests.

14-20 **Botany Field Days**
Saturday through Friday, 10 a.m.-4 p.m. "Tropical Treasures: A Closer Look at Plants" is the theme of this year's Botany Field Days featuring a variety of activities for all age groups. (*See Highlights.*)

17 **Evening Garden Tour**
Tuesday, 5:30 p.m. Meet at Ridgway Center. The Garden Guides will conduct a special tour for Members only.

21-22 **Garden Club Show**
Saturday, 12 p.m.-5 p.m., and Sunday, 9 a.m.-5 p.m., Orthwein Floral Hall. The Greater St. Louis Men's Garden Club hosts a cooperative exhibit with several societies from the area. Included in the display will be roses, cacti, dahlias, bonsai and many more.

22 **Future in the Wild**
Sunday, 3 p.m., Ridgway Center. An exhibit and lecture by the World Wildlife Fund-U.S. dealing with the conservation of plants and animals. (*See Highlights.*)

28-29 **Dahlia Society Show**
Saturday, 12 p.m.-5 p.m., Sunday, 9 a.m.-5 p.m., Orthwein Floral Hall. This popular show will include a selection of dahlias from across the country. (*See Highlights.*)

OCTOBER

1 **Norman Myers Lecture**
Tuesday, 8 p.m., Shoenberg Auditorium. Dr. Norman Myers, well known for his extensive work on tropical forests, will review the latest findings on threatened species in a lecture entitled "The Environmental Prospect: Gloom or Bloom?"

5-6 **Gesneriad Society Show**
Saturday, 12 p.m.-5 p.m., Sunday, 9 a.m.-5 p.m., Orthwein Floral Hall. The exhibit will feature plants from the gesneriad family, excluding African violets. Plants of the gesneriad family are famous for their beauty as hanging plants, but are typically hard to grow.

10-27 **Quilt Exhibition**
Regular Garden hours, Monsanto Hall. An exhibit by the Thimble and Thread Quilt Club features a variety of beautiful and meticulously woven quilts.

13 **Climatron Anniversary Celebration**
Sunday, 11 a.m.-5 p.m. Visit the Climatron as it celebrates its 25th anniversary. Stop by for cake and prepare to be entertained by everything from flower arranging to snakes. (*See Highlights.*)

Plans Being Made for Fall Flower Show

The Garden staff is busy preparing for one of the best Fall Flower Shows in our history. The show, which will run from November 2 through November 24, in the Orthwein Floral Hall, will feature a "Country Harvest" theme. The show will depict a rural American homestead of the mid-1800s complete with a full-size log home, covered wagon, split-rail fence and, of course, lots and lots of fall flowers. Members are invited to a special preview of the show on Friday, November 1, from 5:30 to 7:30 p.m.

FALL LEARNING OPPORTUNITIES

For a complete description of autumn courses and activities at the Garden and Arboretum, please consult the Fall Courses & Lectures brochure, which was mailed to Members recently. The brochure is available through the Education Department. To check on availability of classes or to request a brochure, please call 577-5140.

NEWS FROM THE LIBRARY

Rare Volume Is Acquired

MAGNOL 1694

The Garden Library recently added to the Sturtevant Pre-Linnaean collection *Prodromus historiae generalis plantarum in quo familiae plantarum per tabulas disponuntur,* published in 1689. The author, Pierre Magnol (1638–1715), was the renowned French botanist after whom the Magnolia was named.

In this classic taxonomic work, Magnol introduced the word "family" into botanical nomenclature by using it in his system of plant classification. Magnol organized his system into 76 family tables, which are divided into ten major sections. Each major section is distinguished by a single overriding shared characteristic, such as bulbs, trees and shrubs, or plants having petals all distinct and free from one another.

The Sturtevant Pre-Linnaean Collection is important because it contains works such as those of Magnol, which are the earliest attempts to systematically classify plants. The collection is called "pre-Linnaean" because all of the books in it were published before 1753, the publication date of Carl Linnaeus's *Species Plantarum*. In *Species Plantarum* Linnaeus introduced his system of binary nomenclature, that is giving two names to plants and animals, a generic name (genus) and a specific name (species). This system, which remains in use today, revolutionized the naming of living organisms because it was easier to implement and more flexible than the previously attempted systems of nomenclature, which employed a series of words to name each organism. Thus, the Sweet bay, called *Magnolia foliis ovatolanceolatis subtus glaucis* in earlier systems, became *Magnolia virginiana* under Linnaeus's system.

The Sturtevant Pre-Linnaean Collection originated with 463 volumes donated in 1892 by Edward Lewis Sturtevant (1842–1898), a scientist noted for his botanical, horticultural and agricultural research. It has since grown to more than 1,000 volumes.

Garden Earns National Recognition

Accredited by the
American Association
of Museums

The Missouri Botanical Garden has been awarded reaccreditation by the American Association of Museums (AAM). First accredited in 1974, the Garden joins a group of only 184 reaccredited institutions out of nearly 5,000 nationwide.

The reaccreditation process requires an on-site visit and a detailed analysis of staffing, finances, physical facilities, collections, and other areas of operation. William C. Steere, senior examiner of AAM, called the Missouri Botanical Garden, "an outstanding institution with an international reputation." The accreditation commission, commended the Garden for the forward progress made since its original accreditation.

The AAM serves museums of all kinds throughout the country including art museums, planetariums and zoos. It established its accreditation program in 1970.

GARDEN'S HERBARIUM RECEIVES $1.19 MILLION GRANT

The Missouri Botanical Garden has been awarded a grant of $1.19 million by the National Science Foundation to help support herbarium activities during the next five years.

The herbarium, which contains more than 3.3 million pressed and documented plant specimens, is the third largest collection of its kind in the United States and one of the most active in the world. The National Science Foundation provides funding for technical staff for such collections through its Biological Research Resources Program based on their scientific importance and use by the scientific community.

The herbarium was founded in 1859 when the Garden opened and, at first, consisted only of the Bernhardi Herbarium, which contained about 40,000 specimens purchased by George Engelmann in Germany on behalf of Henry Shaw, the Garden's founder. Then, as now, this botanical library of carefully classified and organized plant specimens has helped document the world's flora. The Garden's Herbarium has one of the best collections of Latin American plants in the world and the best representation of African plants in North America.

As further indication of the 126-year-old herbarium's importance to the science of botany is its designation as a National Resource Center by the American Society of Plant Taxonomists. The Garden's herbarium loans more than 45,000 specimens each year to recognized botanical institutions and is visited by botanists from throughout the world.

In order to study the plants in the collection and acquire additional specimens, the Garden's Research Division and herbarium employs 28 Ph.D.s, many of whom live in Central or South America or Africa collecting and studying each country's flora. This results in the addition of more than 80,000 specimens a year to the collection. The Garden assists in many other kinds of research such as animal behavior, ethnobotany, and the search for new medicines by identifying the plants involved. The Garden also trains graduate students in Botany in cooperation with Washington University, St. Louis University and the University of Missouri-St. Louis.

Garden Hosts Largest African Botany Meeting in U.S.

The Garden hosted the 11th plenary meeting of the Association for the Taxonomic Study of the Flora of Tropical Africa (AETFAT) in June. More than 120 botanists (pictured above) attended the sessions, including 35 representatives who came directly from Africa and 32 who came from Europe. The meeting was the largest gathering of African botanists to take place to date anywhere.

The organization has been coordinating French and English speaking efforts to study the plants of Africa since the 1950s. The recent meeting at the Garden was underwritten, in part, through the generosity of the Monsanto Company and the National Science Foundation.

One of the side benefits of the meeting was the signing of letters of intent to begin botanical collaboration between the Garden and the National Herbarium of Gabon, Africa. Representing Gabon was AETFAT participant Jean Nöel Gassita (above left, with Dr. Raven.)

Paul A. Kohl, 65-Year Employee of Garden, Dies

Paul A. Kohl, a Garden employee for 65 years, died July 3, at the age of 90. The recipient of the Henry Shaw Medal in 1982 and a graduate of the Henry Shaw School for Gardening in 1917, Mr. Kohl had worked part-time at the Garden's Answer Service since 1970.

"The hurt from the loss of Paul Kohl will always be with us. His outstanding contributions to the Missouri Botanical Garden aside, Paul Kohl was a kind and loving man whose goals in life were to bring beauty into the lives of others," said Garden Director Peter H. Raven. "He was a quiet and unassuming man with a special gift for creating life in the form of plantlife, and he was always eager to share that gift, that knowledge, with others. We will miss him dearly."

As the fifth recipient of the Henry Shaw Medal since its creation in 1933, Kohl was the first staff member to be so honored. The medal recognizes accomplishments or service to the Garden.

As C. C. Johnson Spink, former president of the Board of Trustees, said when presenting the medal to Kohl, "It is difficult—I'd say impossible—to figure what the Garden would be today had not this man cared so much for it and given so much of himself to it."

Mr. Kohl's career at the Garden began as a floriculturist in January, 1920 following an Army stint and his graduation in 1917 from the Henry Shaw School for Gardening. The school provided professional training in such fields as gardening, horticulture and landscape architecture, all necessary qualifications for Mr. Kohl's chosen field.

Mr. Kohl is perhaps best known for his 40-plus years as the person who staged the Garden's floral display shows. As one of the many Garden employees trained over the years by Kohl once said, "He was a real master."

1985 Seed Conference Coming to MBG

A weekend of lectures, demonstrations, and workshops will highlight the 1985 Seed Conference co-sponsored by the National Gardening Association and the Missouri Botanical Garden October 4, 5 and 6. The meetings hope to promote a network of gardeners committed to the preservation of old favorite vegetable varieties.

Anticipated are 300 gardeners who will learn more about heirloom varieties, the seed companies, how to meet and share your favorite seeds, and even ideas on how to start your own business. Over 200 sources of garden seeds will be available at the Ridgway Center.

For more information, write to:
Seed Conference
National Gardening Association
180 Flynn Ave.
Burlington, VT 05401

IN MEMORIAM: *Mary McDonald*

Garden Members and staff were saddened to learn of the death, on July 12, of Mrs. F. Donald McDonald.

Mrs. McDonald was very involved in the restoration of Henry Shaw's country home, Tower Grove House, serving on the Historical Committee. She also served as chairman of the Tower Grove House Historical Committee from 1978 until 1982.

Carla Lange Retires

After 21 years of dedicated service, Carla Lange retired from the Garden Library July 9, 1985. Carla is remembered by many Library users for her keen ability to locate the most obscure botanical references and her facility for reading many languages.

Carla wrote many articles on interesting herbals and other important botanical works for the *Bulletin*. She also translated more than 250 letters written in German to George Engelmann (1809-1884), physician and botanist who served as Henry Shaw's scientific advisor.

From the Garden Gate Shop

Come shop at the Garden Gate Shop to see all of the above items plus many more such as: plates, mugs, glasses, windbells, book marks, pens, pencils, spoons, key chains, coasters, T-shirts, hats and frisbees. To order by mail, see next page.

September is a big month in the Garden Gate Shop. The Fall Plant Sale will be held Thursday through Sunday, September 12–15, and will feature tropical plants, fall bulbs and hardy mums. Both the plant and gift shop will offer 20% off to Members of all merchandise with Thursday and Friday reserved for Members only. Hours of the sale are 9 a.m. to 6:30 p.m. Thursday and Friday, and 9 a.m. to 5 p.m. on Saturday and Sunday.

While visiting the Fall Plant Sale be sure to pick up the new Garden Gate Shop brochure for announcements of the many exciting activities planned for October in the shop.

Mark your calendars now for the Christmas Preview, Wednesday, November 6, and Thursday, November 7, in the shop. Members will receive 20% off on all merchandise. Refreshments will also be served from 9 a.m. to 8 p.m.

Speaking of calendars, the *1986 Missouri Botanical Garden Calendar* featuring photos by Garden Member Jack

NEWS FROM SHAW ARBORETUM

The Maximillian Sunflower

Of the more than 100 species of wildflowers now found in the Experimental Prairie, none is more evident than the Maximillian Sunflower (*Helianthus maximilliana*) especially during its blooming period, September and October. The large masses of golden yellow flowers are very showy, whether viewed closeby or sweeping across the prairie mixed with the tall grasses.

This species was planted by drilling in the seed along with the native grasses in 1980. The seeds which sprouted have now formed large clumps which produce masses of golden yellow flowers on stalks up to 10 feet tall.

This is not a species for a small wildflower garden. Besides its height and tendency to fall over when not supported by other tall plants, it spreads underground by rhizomes. This rhizomatous spreading could be a potential problem even in the intense competition for light, water, and nutrients in the Experimental Prairie. Although a beautiful plant, it could become too dominant in certain areas of the prairie.

The Maximillian Sunflower may be identified by its great height when mature and by the drooping leaf blades which are folded lengthwise. The upper stem, leaves, and involucral bracts are covered with short, appressed hairs producing the gray-green color of the plant.

Goldfinches are happy to see such large masses of this sunflower since they feed on the seed in October and November. The tall stalks make this feeding easy to observe.

BACK BY POPULAR DEMAND

Opening the Arboretum Trail House Loop Road this spring was so popular with visitors that it will be opened again this fall. From September 11 through November 13, the Loop Road will be open to vehicles from 8 a.m. to 4 p.m. on Wednesdays only, for those who find walking difficult. For safety reasons, visitors are asked to stop and register at the Visitor Center. For more information, please call the Arboretum at 577-5138 or 742-3512.

Jennings will soon be available in the shop. This popular gift item is the best yet. Buy several while the supply lasts.

The Henry Shaw Rose is again on display in the Garden Gate Shop. The pink porcelain rose by Boehm Studios sells for $65.00.

M.B.G. *Gift Ideas*

☐ **M.B.G. Umbrella**
Our own Garden umbrella. Cotton poplin, tan with blue and green ribbon trim of Garden logo. 48″ diameter, wood handle and shaft. $35.00 ($3.50 postage and handling).

☐ **M.B.G. Necktie**
Our exclusive tie, both for ladies and men. 100% polyester in navy with green Garden logo and gold stripes. Men's $12.50, Ladies' $11.50 ($2.00 postage and handling).

☐ **M.B.G. Note Cards**
Ten Redouté Rose notes with envelopes in M.B.G. folder. $5.00 ($1.50 postage and handling).

☐ **M.B.G. Paper Weight**
Practical paper weight, hand made with real flowers, Ridgway Center pictured in center. $12.95 ($2.00 postage and handling).

Members are entitled to a 10% discount on merchandise.

I enclose a check payable to the Missouri Botanical Garden for:

$____________________

Charge to: ☐ MasterCard ☐ VISA

Account No. ____________________

Expiration date ____________________

Signature (if using credit card):

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Name ____________________

Address ____________________

City ____________________

State/ZIP____________________

Mail to: Missouri Botanical Garden
Garden Gate Shop
P.O. Box 299
St. Louis, MO 63166

PLANT TALK FROM THE GARDENVIEW RESTAURANT

Eggplant

(Solanum melongena)

Eggplant, often known as *Aubergine*, is probably a cultivated form of wild species native to India. It is a member of the Nightshade family (solanaceae) which also includes the popular potato and tomato. The edible fruits are large berries and contain numerous seeds for which reason the fruit should not be allowed to become overripe. The fruit is attached to the plant by an almost woody fruitstalk and is often covered with sharp spines.

Eggplant appeared in Europe in the 14th century and spread in its cultivation during the middle ages, primarily to the Mediterranean region. It is a very hardy perennial plant, cultivated as an annual, and is very disease resistant.

Two classic recipes for eggplants are "Ratatouille" from France and "Imam Rayeldi" from Turkey. Ratatouille is a vegetable stew of coarsely chopped eggplants, onions, zuchinni, red and green pimentos, garlic, crushed coriander seeds, cooked in olive oil. To make Imam Bayeldi ("Swooning Imam"), the eggplants are stuffed with various chopped meats and vegetables and simmered slowly for three hours in olive oil, then cooled for 24 hours and eaten cold as an hors d'oeuvre. The story goes, that when his 1,000 wives served this dish to him, the Turkish imam swooned with ecstasy. Eggplant can also be sliced, lengthwise or crossways, and breaded in tempura batter and deep fried or tossed in flour and fried. A very famous dish is eggplant parmesan, a combination of eggplant, tomato, parmesan cheese and oil.

K. Laser, Ph.D.
Chairman, Education Dept.

Kids' Tip

Eggplant can be cooked in numerous ways but should not be eaten raw since it contains a dangerous chemical, solanine. The cooking process eliminates the solanine, and the eggplant is then edible. Eggplants are very nutritious, containing 1% protein, 3% carbohydrates and no lipids (fats). Before cooking, sliced eggplants should be sprinkled with salt and left, covered, for 30 minutes to draw out the excess water, giving them a firmer texture when cooked.

Ratatouille—*6 or more servings*

6 tablespoons olive oil
1 medium eggplant, unpeeled and cut into 1½-inch cubes
3 medium zucchini, quartered and cut into 1-inch lengths
Salt and freshly ground black pepper
3 onions, coarsely chopped
2 green peppers, cored, seeded, and coarsely chopped
4 cloves garlic, finely minced
1 bay leaf
2 pounds fresh tomatoes, peeled and cut into 1-inch cubes
½ cup finely chopped parsley
2 teaspoons finely chopped fresh thyme or ½ teaspoon dried thyme
1 tablespoon finely chopped basil or 1 teaspoon dried basil
Lemon wedges (optional)

1. Preheat the oven to 350 degrees.
2. Heat half the oil in a large skillet and add the eggplant, zucchini, and salt and pepper to taste. Cook, stirring, about five minutes.
3. In another skillet, heat the remaining oil and add the onions and green peppers. Chop the garlic and bay leaf together to make a fine paste. Add this to the onion mixture. Add the tomatoes and simmer, stirring occasionally, about ten minutes. Add the eggplant and zucchini, then stir in the parsley, thyme, and basil. Spoon the mixture into a casserole, cover, and bake 20 minutes, or until the vegetables are tender. Serve hot or cold. If cold, serve with lemon wedges.

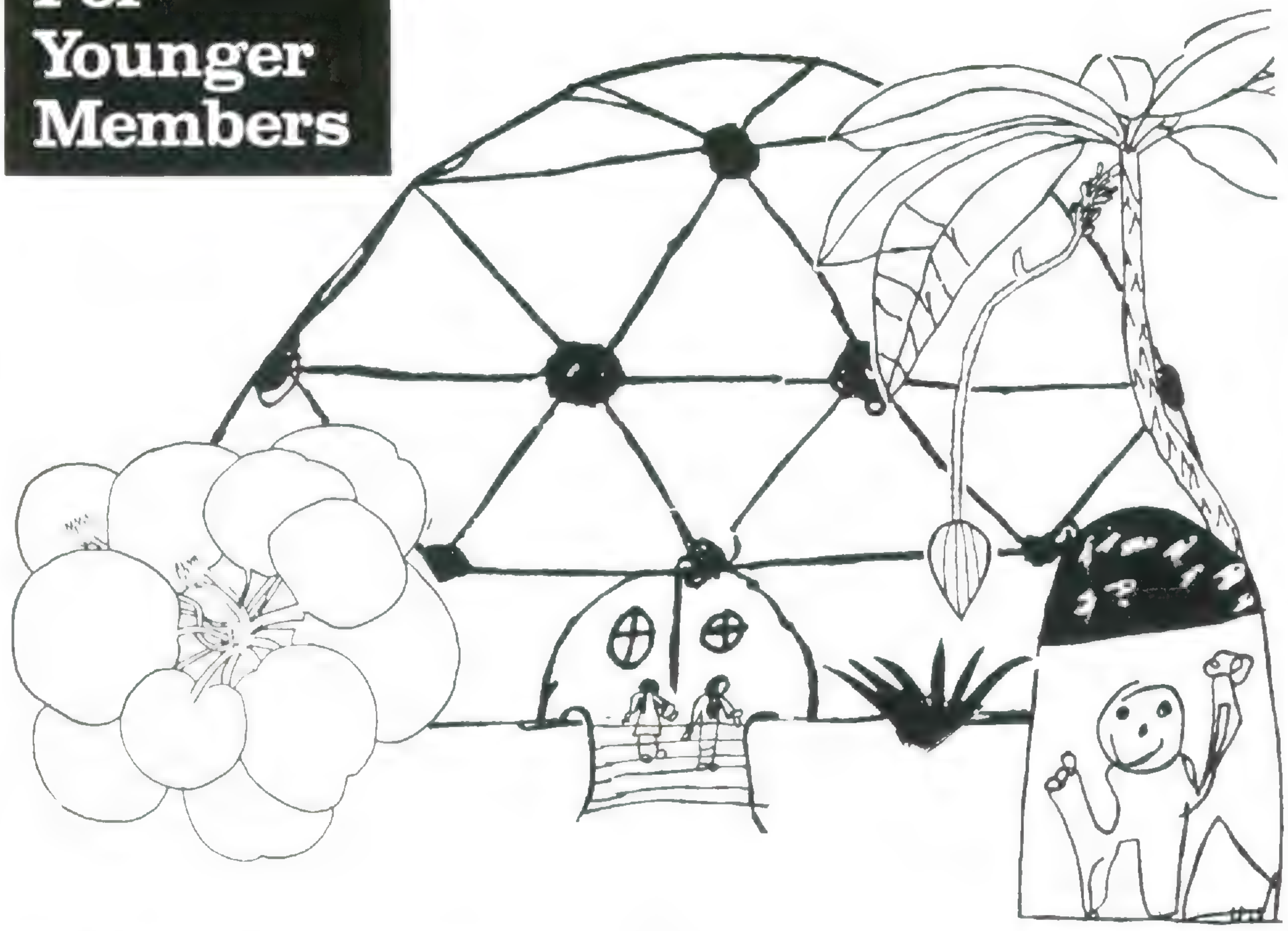
Snack Shop:

Watch for special tropical treats on October 13, for the Climatron's 25th.

Sunday Brunch:

Watch for special brunch with tropical flavor on October 13, for the Climatron's 25th.

For Younger Members



The Climatron

Its geodesic dome is made of aluminum tubes arranged in six-sided patterns. It is one of the most advanced greenhouses in the world for displaying and studying plants. Tropical and semi-tropical plants grow in its warm, wet climate. What is it? If you guessed the *Climatron* at the Missouri Botanical Garden, you are correct!

The Climatron has been open to visitors since 1961. Beneath its 70-foot high dome is a tropical rain forest, or jungle. Warm temperatures and heavy rainfall make a real tropical rain forest very green all year long. The jungle inside the Climatron stays warm throughout the year with the help of special equipment that controls the temperature. Even in winter, the plants remain green in the Climatron's warm, wet climate. Many of them bear large, bright flowers. Some of the plants produce foods that we eat, such as oranges, lemons, bananas, pineapples, dates, or coconuts.

The plants in the Climatron become their own "rain-makers" as they help produce the water that keeps the dome moist inside. How does this happen? Water evaporates from the leaves of the plants. The water vapor which is formed condenses into water droplets on the inside of the Climatron. The droplets drip down from the walls and ceiling of the Climatron. This dripping water "rains" on the plants and is soaked up by the plant roots. Once again, the water evaporates from the leaves and the process starts over again. This process is called the *water cycle.* You can see the water cycle at work if you observe a small terrarium. And when you walk through the jungle in the Climatron, you may even feel a "raindrop" or two dripping on your head.

PROJECT:

Making A Terrarium

The water cycle within the Climatron can be easily observed in a small terrarium. A *terrarium* is usually a closed jar, fish bowl, or other container with clear sides. It is used for growing small plants. You can grow several small plants in a terrarium the size of a large mayonnaise jar.

You will need: a large glass jar with a lid; horticultural charcoal; gravel (or sand); rich top soil; a few small rocks; water; a variety of small plants such as moss, ferns, or ground ivy.

What to do: Mix a small amount of the gravel and charcoal together. Place the mixture in the bottom of the glass jar to a depth of one inch. Cover the gravel and charcoal mixture with three inches of soil.

Carefully arrange the small plants and gently place their roots into the soil. Place a few small rocks between the plants for interest. Water the soil, and put the lid on the jar. Set the jar where it will get some light, but not direct sunlight. Watch for water vapor to condense on the inside walls of the jar. The inside walls will look like they are "sweating."

The plants in the terrarium will need little care and will live in their own environment within the jar. If the terrarium becomes too dry, add a little more water. If it gets too wet, remove the lid for a few hours. If you want to experiment a bit, punch 4 or 5 holes in the lid and replace it on top of the jar.

PROJECT: *A Tropical Fruit Salad*

Many tasty, refreshing fruits grow in a tropical rain forest. Here is a simple and delicious fruit salad to make on a late summer day.

You will need: fresh orange; banana; pineapple slices; orange juice; shredded coconut; bowl.

What to do: Peel the orange and separate it into small sections. Peel and slice the banana. Place banana slices and orange sections into a bowl. Add pineapple slices. Pour 1/4 cup orange juice over the fruit. Sprinkle fruit with shredded coconut. Enjoy a treat from the tropics!

—Ilene Follman,
Educational Consultant

Tributes

MAY-JUNE 1985

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Mr. and Mrs. Rick Halpern

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Teel Ackerman
Martin O. Israel
Mr. and Mrs. Louis R. Putzel
Lois and Alan Ross

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Miss Marilyn Wind

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Martin O. Israel

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Mr. J. M. Swank

Erna R. Eisendrath
Harriet M. Bakewell
Ruth and Edgar Denison
Patricia Jordan
Bill Murdy
Mr. and Mrs. Byron Sachar

(continued on next page)

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(continued from page 17)

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Mr. and Mrs. Robert Tschudy
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Geraldine Epp Smith

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Elaine Gayson
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Muriel Schmaltz
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Plants To Remember

Rattan

Most of us have a rattan plant basket, door mat, picnic basket, or even some rattan furniture, but few of us stop to think about the plant itself.

Rattan (*Daemonodrops grandis*) is a climbing member of the Palm family (*Araceae*). It grows abundantly in the tropics over a wider range than any other genus in this group. Rattan has relatively thin stems (¼″ to 2″ in diameter) but reaches amazing lengths (up to 500′ long). Each evergreen leaf grows up to ten feet long with 36 or more equally-spaced leaflets along the midrib. These stems climb to form a large, tangled obstruction. Along the underside of the leaf, midrib and along the stems, grow a series of sharp thorns. Look but don't touch!

Commercially this plant is stripped of its outer "bark" and thorns to find a soft but extremely durable material used for making lots of different household articles. In its native lands this pliable, sturdy cane or rattan is made into suspension bridges!

Come and see a large specimen located near the north end of the portico in the Climatron.

—B.J. Jarvis

Raven Accepts Tyler Prize for Organization for Tropical Studies

Garden Director Peter Raven traveled to Los Angeles recently to accept the world's most prestigious environmental award, the Tyler Prize, on behalf of the Organization for Tropical Studies (OTS). The organization received $75,000. Raven was elected president of the OTS in March, 1985.

The Organization For Tropical Studies is a consortium of 26 North American and four Costa Rican universities and research institutions. It was founded in 1963 to acquire and disseminate a broad understanding of tropical environments. The OTS conducts training and research programs in the tropics from a logistic support base in Costa Rica. The organization is committed to serving the entire scientific community, not merely the interests of its member institutions.

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Missouri Botanical Garden

BULLETIN

HOLIDAY *Magic*

VOLUME LXXIII • NUMBER 7 • NOVEMBER–DECEMBER 1985

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The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $35 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

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Comment

Holiday Time at the Garden

As we head into fall and the holiday season, I hope you and your family will make the Missouri Botanical Garden a part of your celebrations.

During November, the traditional Fall Flower Show will focus on a harvest theme. Complete with log cabin and Conestoga wagon, the display will include a variety of fall flowering plants in addition to colorful gourds. I encourage you to spend some time strolling through the display to appreciate how dramatic and exciting the flower shows have become in recent years.

December brings the winter Holiday Show to Orthwein Floral Hall, and I think theme this year. Most people are unaware that the popular holiday poinsettia is native to Mexico. We are celebrating the holidays in a "Spanish mission" style this year and you will have an opportunity to see an exciting array of plant forms including cacti, succulents and poinsettias in their natural settings. Also not to be missed is the Members' Holiday Tree decorated with the 1985 souvenir ornament.

This time of year the Garden calendar is packed full of exciting exhibits and activities for the whole family. Join us for an evening of music, an afternoon of shopping, or Supper with Santa. During this busy time of year, you will also want to take just a moment to appreciate the peace of the Garden we have all come to enjoy.

Peter H Raven

Science Teacher Symposium Set for November 22

Spectacular slide views of Earth from space will kick off the third Teachers' Science Symposium sponsored by the Garden, Friday, November 22. Dr. Richard Underwood of the National Aeronautical and Space Administration will focus on the Symposium's theme "Beyond 2001: Science for the Next Generation" and on our changing concept of our planet as the result of space exploration and other technological advances.

Addressing the Symposium on Saturday, November 23 will be Dr. Alice Moses, President of the National Science Teachers Association, and Dwight Crandell, Director of the St. Louis Science Center.

The Symposium will include workshops taught by experts and master teachers providing hands on activities, curriculum materials for classroom use and the latest in scientific research and teaching methods. Professional teachers will also have an opportunity to exchange ideas with their colleagues. In addition to the program there will be exhibits by educational organizations, private corporations and government agencies. Two receptions and a luncheon are included in the $25 registration fee.

Teachers are urged to register early as space is limited. For information and a brochure describing the symposium program and workshops, call Claudia Spener or David Wilson, (314) 577-5140 or write Science Symposium, Missouri Botanical Garden, Education Department, P.O. Box 299, St. Louis, MO 63166.

Holiday "Trees" To Be Featured in December

Deck the Hall!

For those of us who think of Christmas trees in the traditional sense of a decorated evergreen, this year's Christmas Tree exhibit may expand our horizons. The Members' Board, who began this tradition with a Victorian display last year, decided to ask six St. Louis area artists to design and construct their versions of festive, holiday trees.

A panel of St. Louisans active in the arts community was invited to select six artists and develop the design criteria for the trees. Sissy Thomas of the Greenberg Gallery agreed to curate the show. The panel includes: William Bernoudy, Barbara Cook and Ann Maritz of the Members' Board; Ken Anderson, a St. Louis artist; Sari Frieden, director of the St. Louis Contemporary Crafts Gallery; James Harris of the Washington University School of Architecture; Celeste Lipscomb, an interior designer; George McCue, retired Arts editor of the St. Louis Post-Dispatch; Julius Polk, an antiques dealer; and Jain Shaikewitz, an active collector. The panel's creative thinking and great interest in the show are sure to make it one of the most exciting exhibits of the St. Louis holiday season.

The artists and their designs to be featured this year are:

■ **Jan Boleto**, a graphic artist for many performing arts organizations including Opera Theatre, uses a skeletal wooden evergreen which she has constructed in the tradition of Mexican and South American folk art. The tree is garlanded with lights which will be a strong design element along with color. With branches at odd angles and the bright colors of Latin American folk art, this tree exemplifies the gay, joyous and festive nature of the holiday season.

■ **Tim Curtis** currently creates "sculptural furniture" and his tree is in that mode. He incorporates classical geometric forms in the furniture as well as naturalistic shapes and his tree has both. Palm trees in a table-like construction express a warm weather holiday and the exploitation of the surface with bright color and pattern adds a whimsical and seemingly paradoxical quality to this work.

■ **Chris Clover** works with light sculpture and his tree is constructed of plastic tubing and fluorescent light. The configuration is six progressively ascending angular structures of tubing painted green in which red fluorescent light is seen through slits cut in the tubing. The shape initially appears abstract but suggests the traditional tree's spikiness and the red and green colors are the predominant ones of the holiday. This warm composition of colors contrasts against the angularity of the sculpture much as the traditional tree is decorated and displayed.

■ **Dimitri Michaelides and Sam Stang** use a live evergreen to display a variety of blown glass ornaments made in their studio and especially designed for this display. The ornaments range in size from two to four inches in diameter and some will be lit from within. The shape and surface decorations incorporate both traditional designs and are in colors of exceptional density and vibrancy. This is a traditional tree covered with the beauty of modern blown glass.

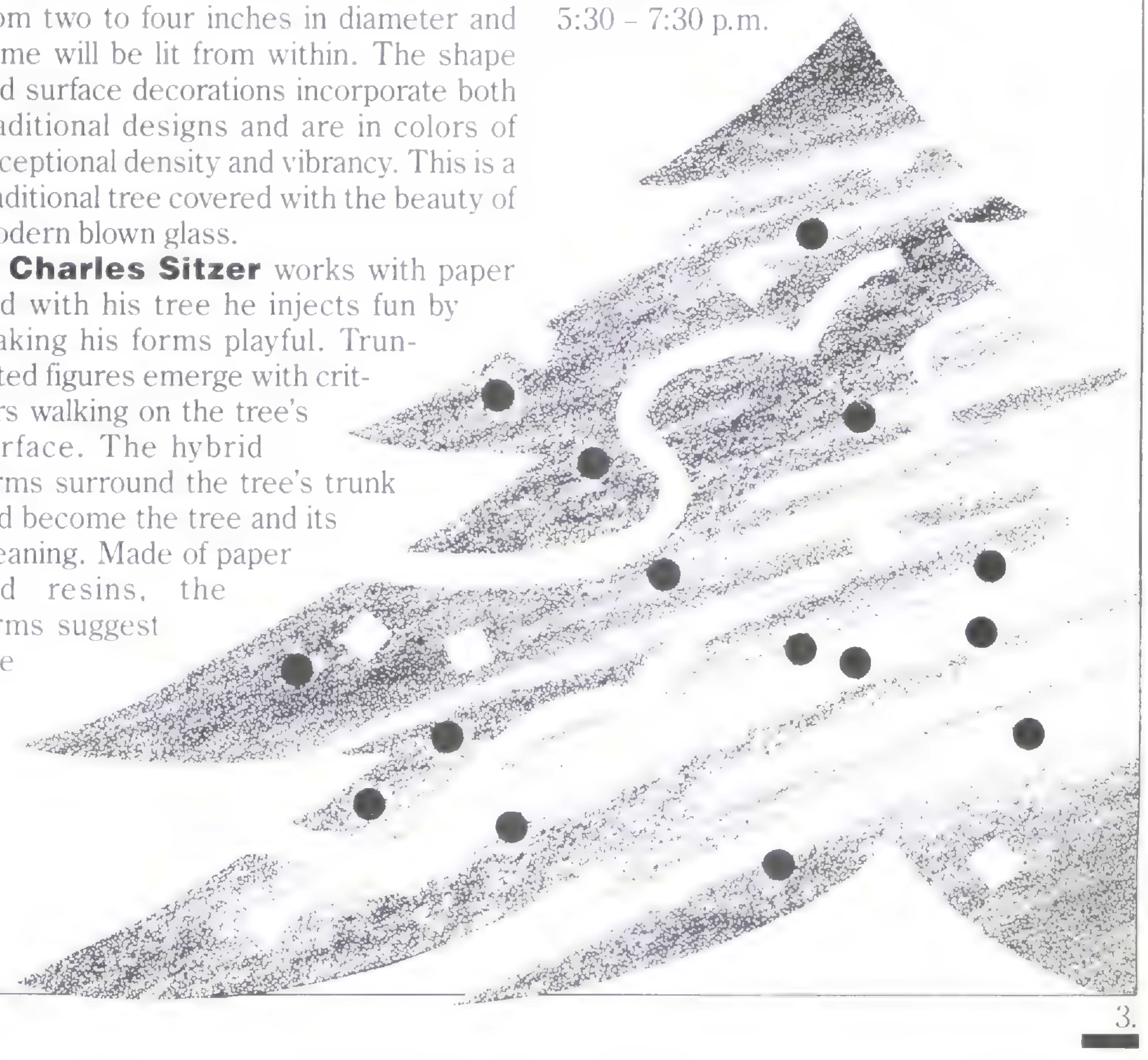
■ **Charles Sitzer** works with paper and with his tree he injects fun by making his forms playful. Truncated figures emerge with critters walking on the tree's surface. The hybrid forms surround the tree's trunk and become the tree and its meaning. Made of paper and resins, the forms suggest the happier and more playful side of the holiday.

■ **Jerry Wilkerson's** work—and tree—deal with contemporary still life and with the usage of common objects and food. His live tree is decorated with seriagraphs of food done in his dotilist style where small dots of colors are used to produce the image. Objects include apples, pears, cherries, hot dogs, and Fig Newtons. The tree also has the very traditional food decorations of popcorn balls, strung cranberries, and candy canes—and the not so traditional chocolate chip cookies. A feast for the eyes!

Special thanks go to Commerce Bank, National Supermarkets, and the Missouri Arts Council for partial funding of this exhibit.

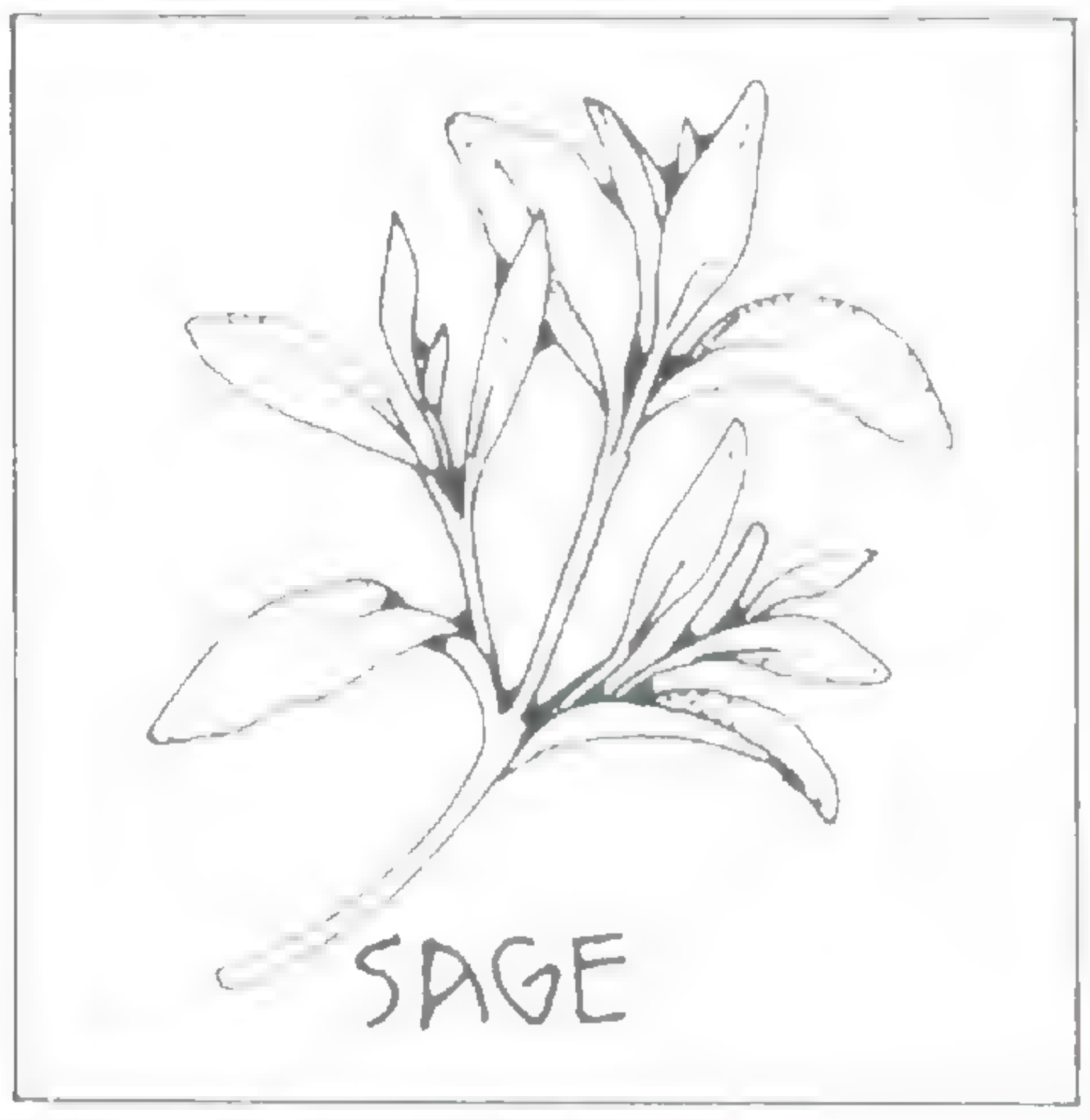
A special Member's Tree will also be on display, decorated with the 1985 Garden ornament. Ornaments will be given with each gift or new membership that is purchased during the holiday season.

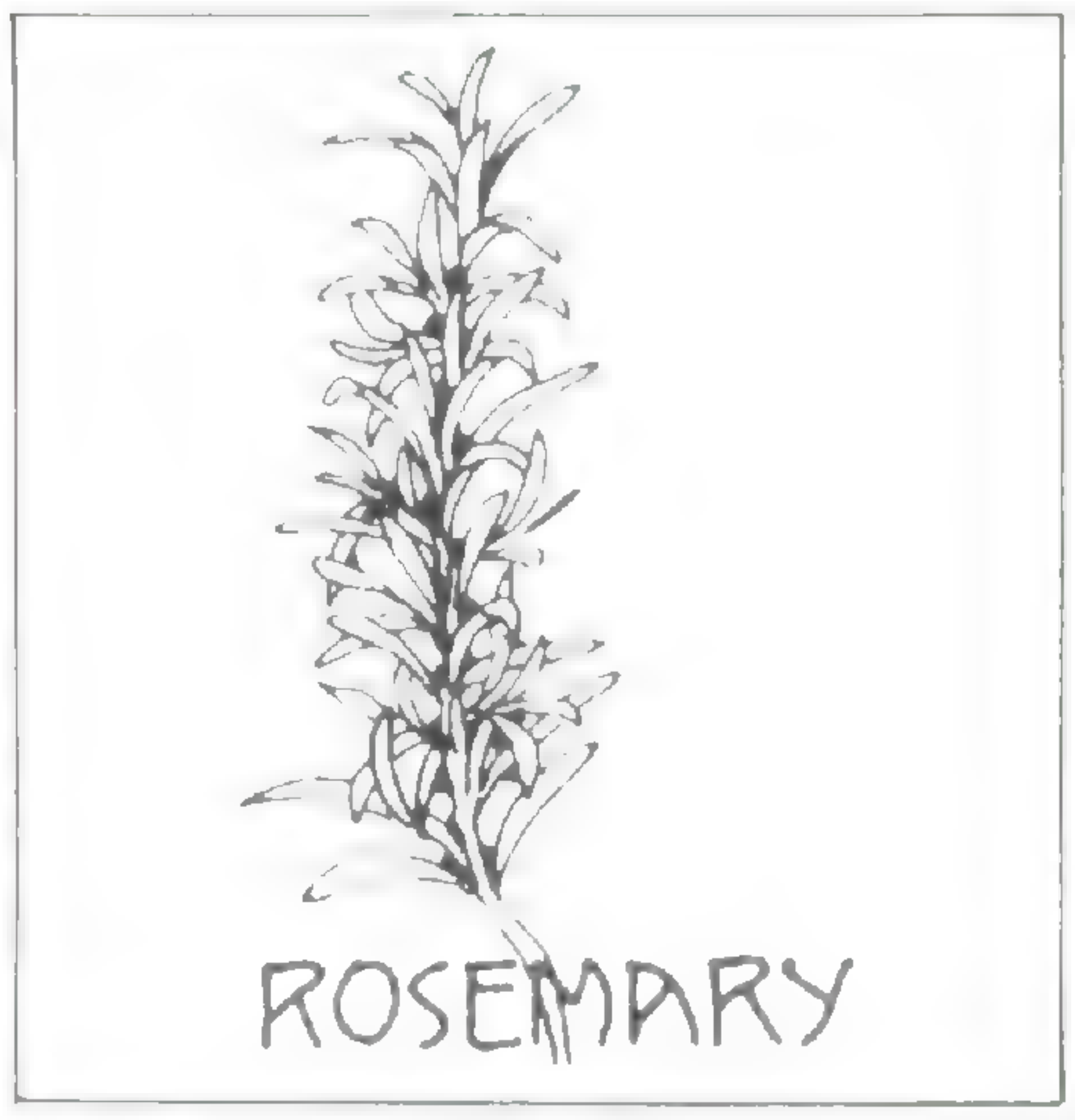
The Holiday Flower Show, Tree Exhibit, and Members' Tree will be on display from December 7 through January 1, 1986. Don't forget the Members' Preview, Friday, December 6,
5:30 - 7:30 p.m.

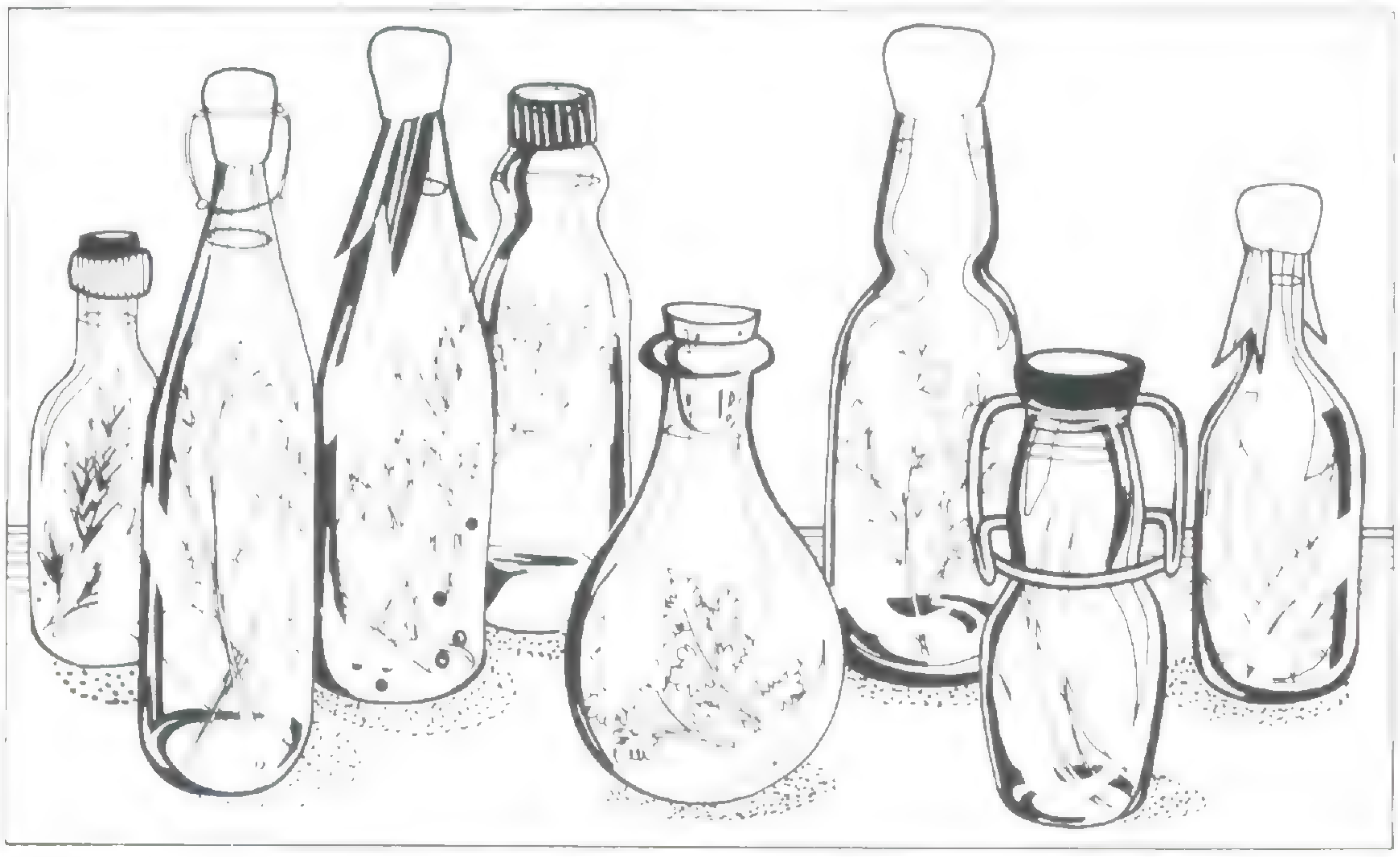


Gardening in St. Louis

Holiday Herbs: Flavorful, Fragran







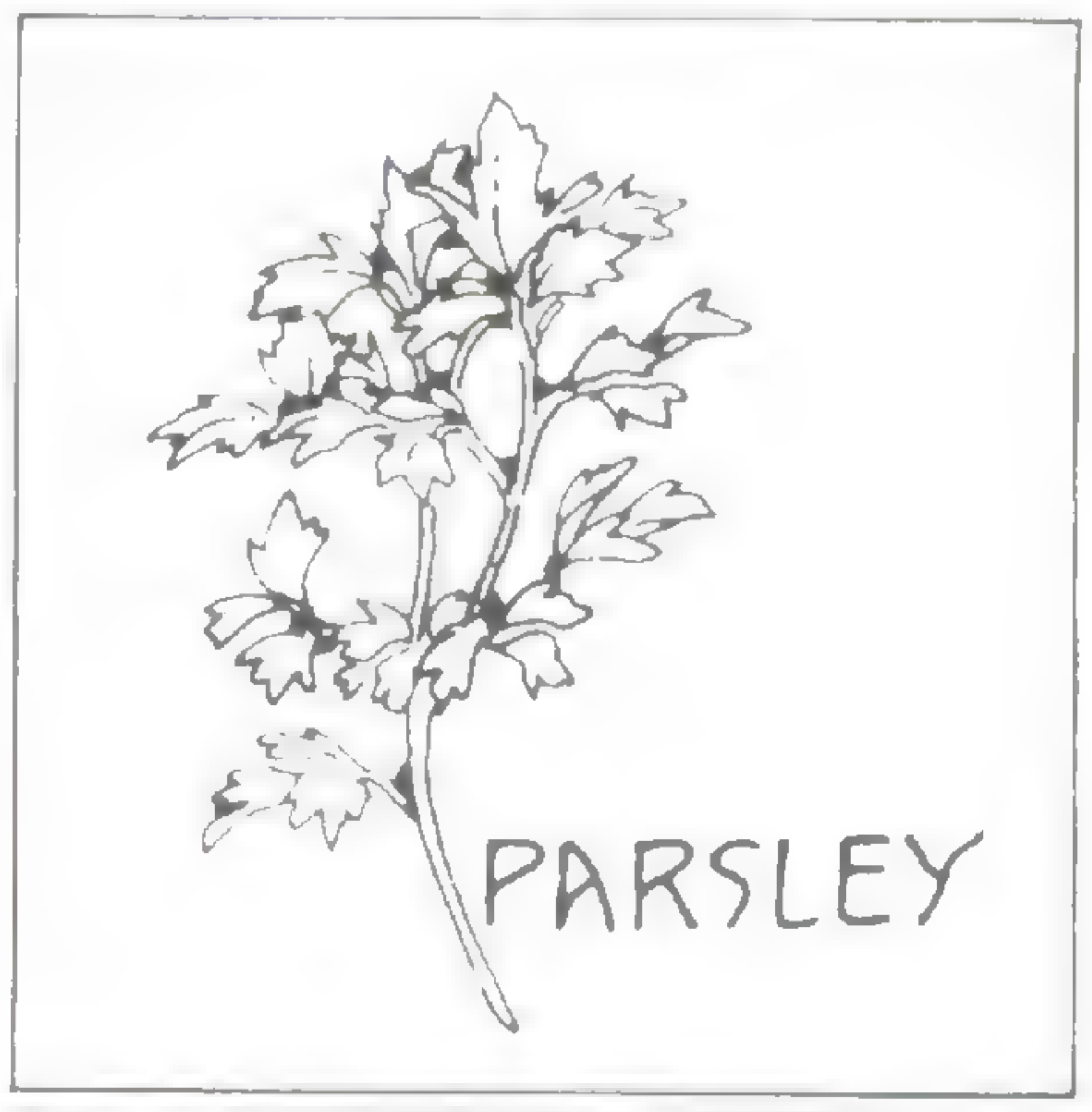
Pumpkin pie fresh from the oven, tender roast turkey with sage dressing, juicy baked ham with cloves. All these remind us of the traditional holiday smells. But to plant people, these smells also remind us of herbs used not only to flavor food, but also used for their medicinal and decorative fragrance purposes. Around the holidays, sage, cloves, cinnamon and allspice are all common herbs and spices used in tempting food and other festive ways.

Soon all garden chores will be finished and, once the holidays are past, next year's garden will be on our minds. Herbs should be included in our list of "garden trials" for 1986. In addition to being grown for their harvest, herbs are excellent, tolerant garden plants.

Herbs have become popular plants to use and enjoy, though these ornamentals are far from new to the cultivated garden. Herb usage dates back to ancient Greek and Roman times when they were used for cooking and medicines. Most herbs had to be homegrown since few were available in trade.

Cooking

Then and today, their most common use is in cooking. To preserve harvests and as a seasoning for salads, soups, and meats are just a few of the uses for herbs. Many cooks are discovering that adding pungent herbs to a recipe reduces the need for so much salt in our diet.



The best way to get started is slowly. Try a few herbs you are already familiar with—mint, oregano, or garlic—and experiment with them, adding new tastes from friends' recipes, even restaurants. They give you an idea of proportion. Many recipes will call for dried herbs and must be converted for use with fresh herbs. Generally it requires 1½ to 2 times more fresh than dried herbs to give the same flavor. The reason for this is plants contain aromatic oils. In dried herbs the moisture is reduced and the oils are more concentrated. Remember though, that herbs should only accent food, never flavor it. In fact, if you can easily pick out an herb flavor it is probably too strong (though "season to taste" always applies).

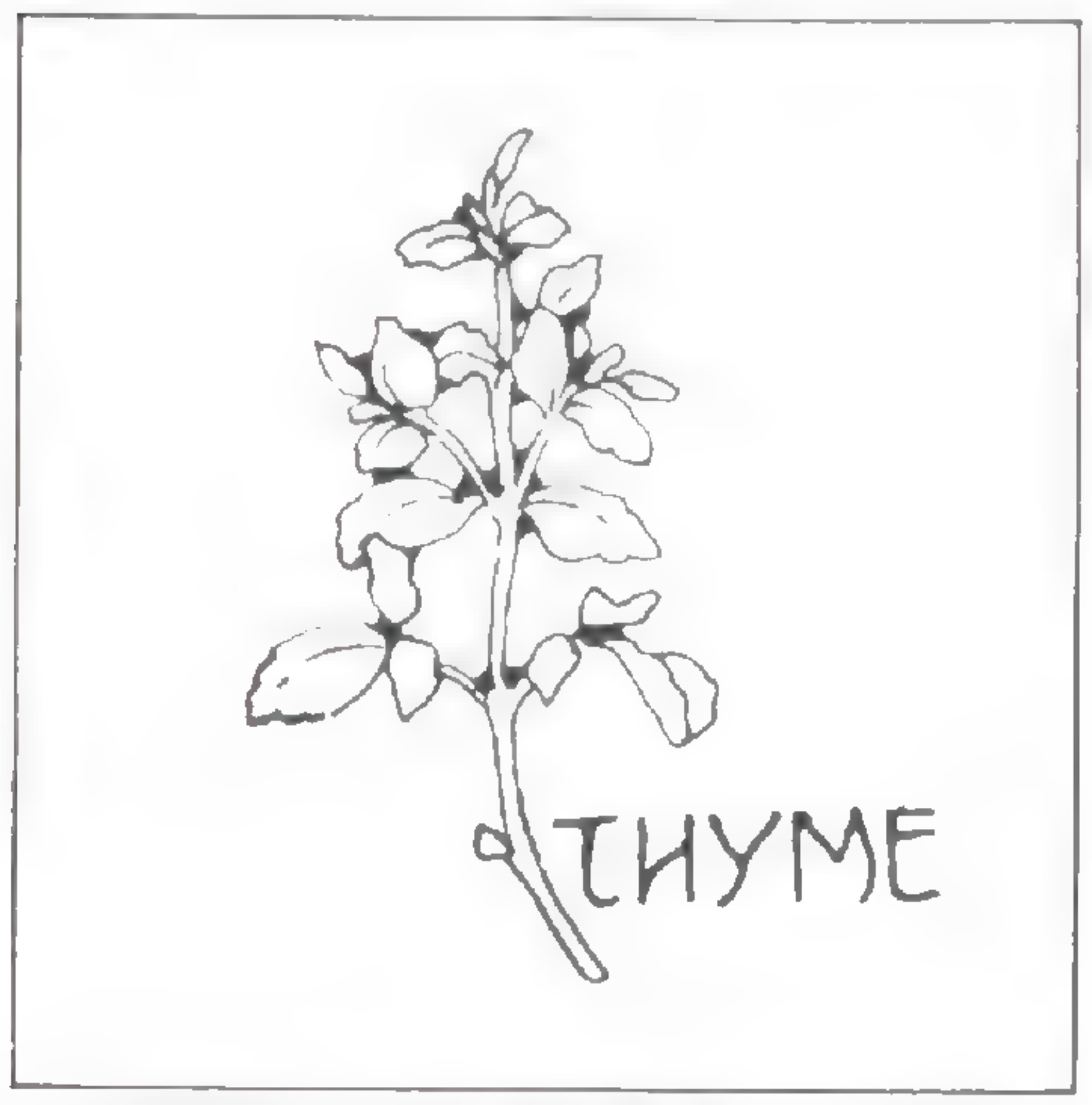
Starting Plants

At this time of year, herb gardens are being put to bed for the winter. A friend may share a few cuttings, or you may buy small herb plants from a nursery. Either type of plant can be grown on a windowsill and used throughout the winter. Don't be afraid to use

& Festive

new flavorful shoots when they appear on the plants. In spring, transplant outdoors.

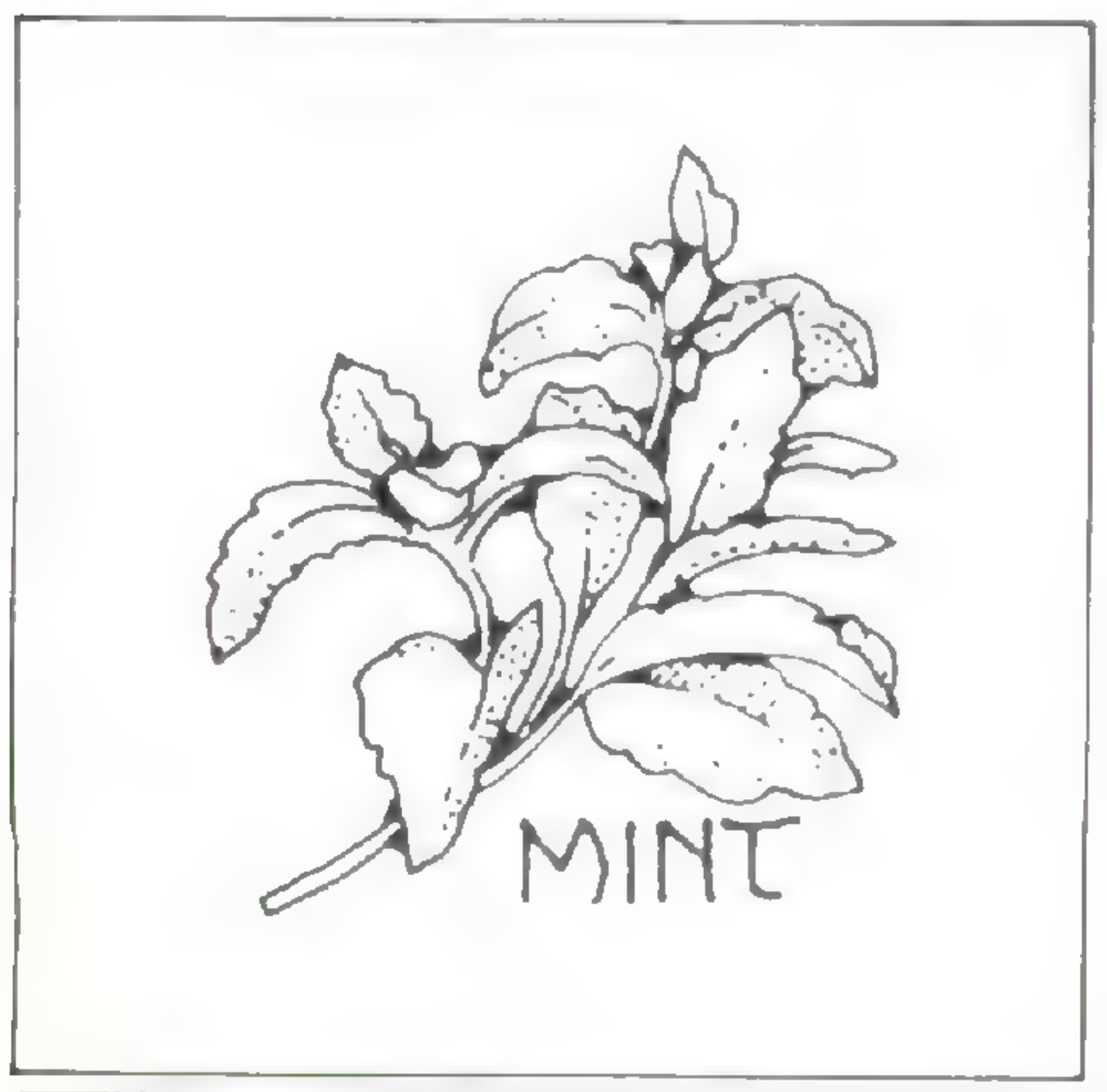
Place plants where they will receive at least 6 hours of sun this winter and when planted next year. If no windows get this much sun, supplement with artificial lighting.



Garden Design

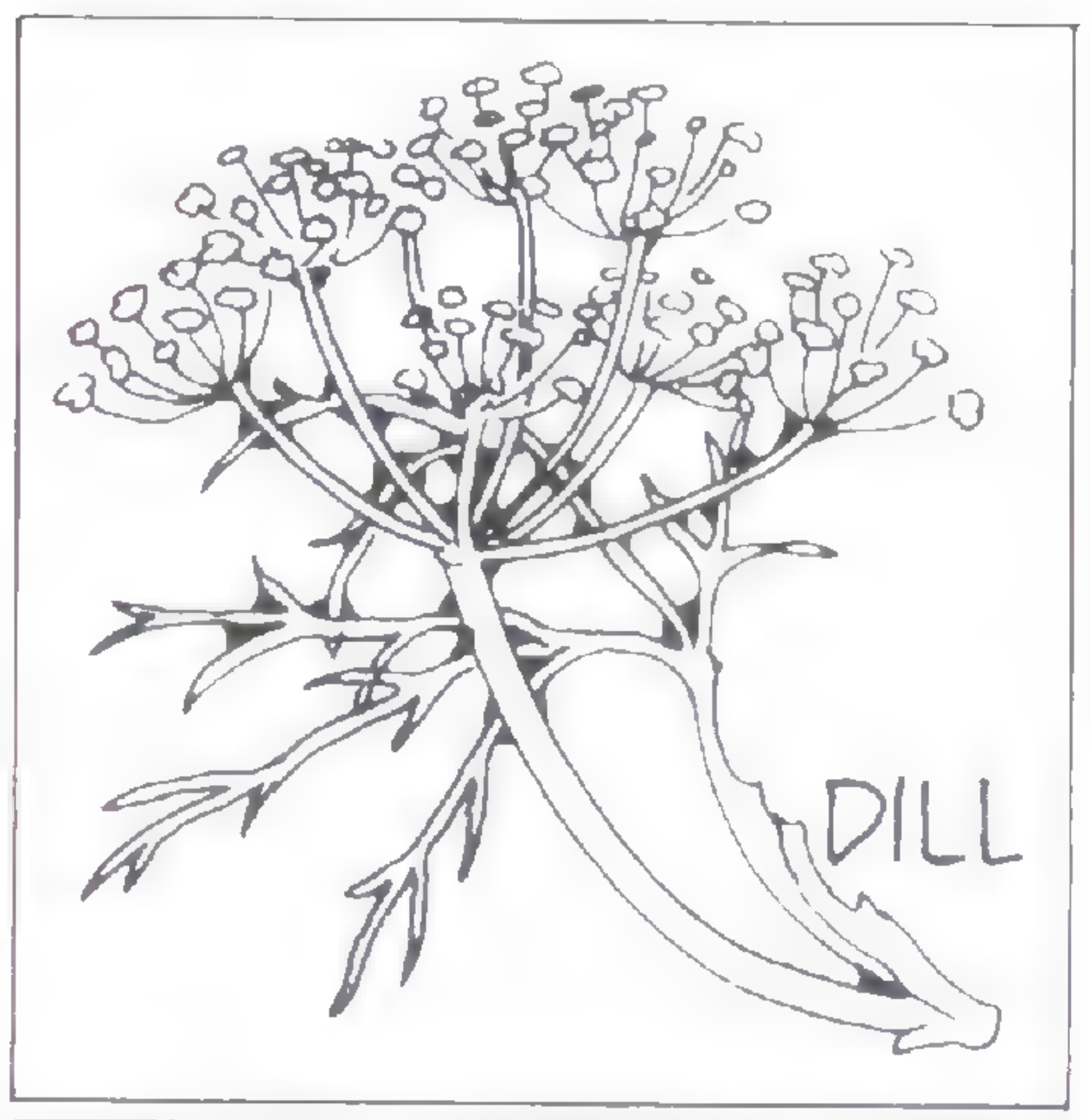
Take time to plan how to incorporate herbs into next year's garden: a traditional knot garden, mixed with flowers, or planted in containers if space is limited.

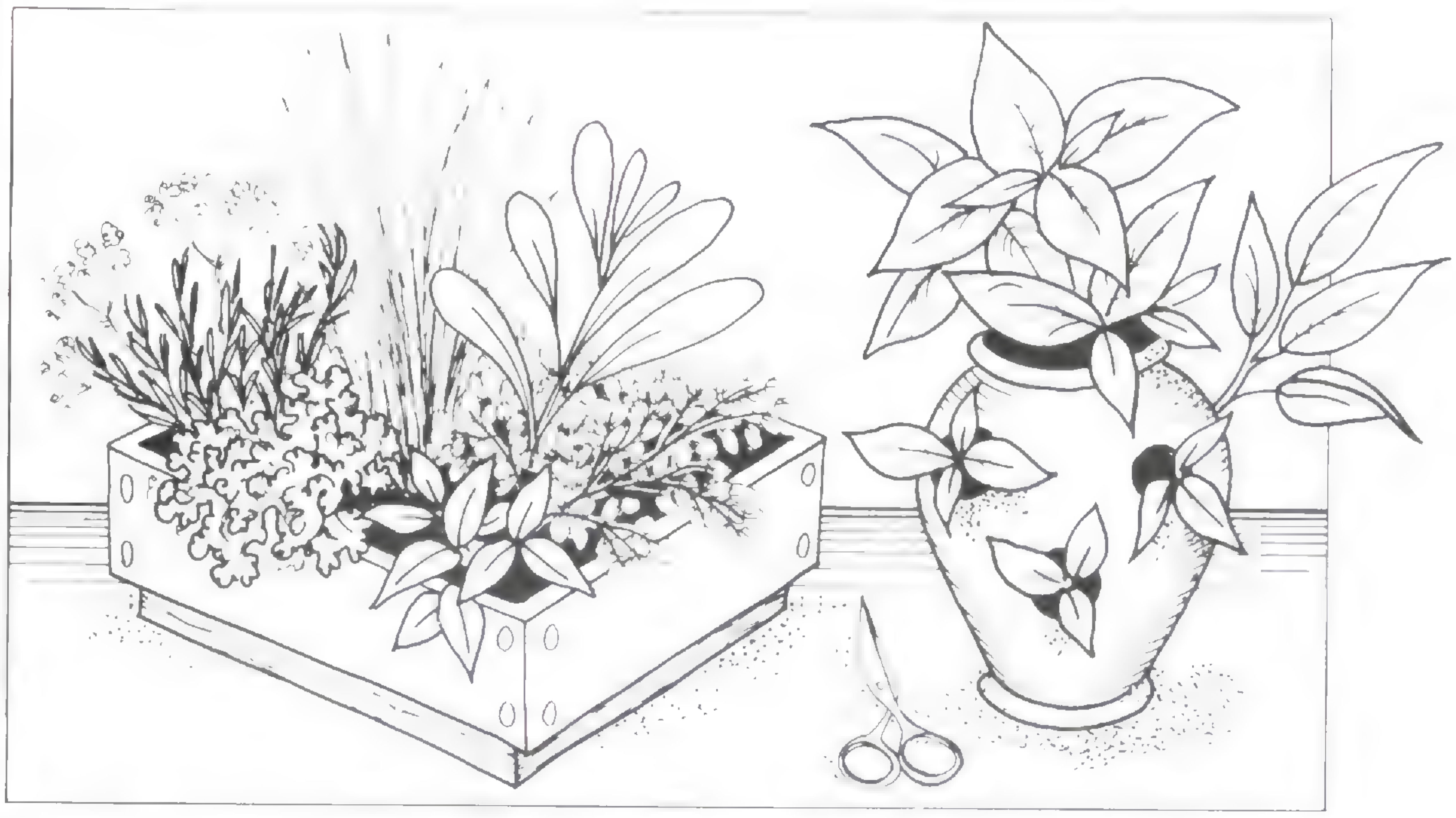
The traditional knot garden can be quite attractive, combining color and texture variations in a simple or intricate design. If this isn't your style or you aren't sold on herbs yet, plant a few among annuals or perennials or add a border to a walk. One of the nicest borders I've seen recently was of Garlic Chives in flower beside a drive (and they won't give you indigestion!).



Containers

Of course for those with limited space or limited physical resources, herbs can be grown in containers. Containers are available in all shapes and sizes to fit the plant and its location. Table top gardens make it easy for diners to season foods to their special tastes.





Planning

Planning the herb garden is not difficult with a few basic considerations. Though herbs have been advertised to thrive under harsh conditions, most prefer a rich, well-drained soil. Sun, water, and minimal fertilizer applications should yield a bumper crop of your favorites.

Fall and winter are ideal times to prepare beds for planting. Soil should be tested and amendments added long before planting time. Organic matter turned under will not only loosen soil but also add organic fertilizer available to plants in the spring.

Planning on paper is a valuable exercise and gives great insight into potential problems. Start with a list of plants you want to grow, their cultural needs, and approximate mature size (in one year). Start sketching them in, combining textures and colors. Plan where annual and perennial herbs will be grown. Group each type so annual beds can be worked without having to avoid perennials. Don't forget the miniature, creeping, or variegated forms for interest.

Have fun experimenting with these exciting and versatile plants!

—Bobbi Jo Jarvis
Public Horticulture Specialist

Report From Africa

Botanical Research in Madagascar

The Missouri Botanical Garden has, since 1968, been recognized as the center in North America for the study of African plants. Since this time, the acquisition of African plants for the herbarium has been actively pursued, and the herbarium now has one of the largest African collections in the world. The maintenance of a large, well curated African collection is seen as a supplement to the Garden's main research activities in Central and South America.

The African program was substantially expanded in 1984 with the appointment of Dr. Laurence Dorr in Madagascar. He spends most of his time in Africa, either actively collecting or collaborating with native botanists to promote the study and conservation of their country's flora.

Madagascar, an island off the southeast coast of Africa, must be considered a world of its own. The flora and fauna of the 590,000 square kilometer mini-continent are unique. The flora is estimated to contain 10,000 species of flowering plants, 80% of which are found only in Madagascar. (By comparison, the State of Texas is slightly larger in area with 4,800 species of flowering plants, 8% of which are unique to Texas.) The aims of the Garden's program are to strengthen collaboration, increase the research effort, train Malagasy students, and collect in threatened areas in an effort to catalog vegetation before it becomes extinct. New species undoubtedly will be discovered and others, poorly known, will be recollected.

Madagascar has a diversity of climate, vegetation, and soil types. The "Grande Isle" is fundamentally a fragment of Africa, thus the biology is an African one. The flora of Madagascar is "moderately known" with one to three times as many specimens as species having been collected. Thus, collections from this area are desirable and important. At the moment, the Missouri Botanical Garden has one of the most representative collections of Madagascar vegetation in the world and the finest in North America.

The following two reports from Garden staff who have been to Madagascar help to describe the Garden's mission in that part of the world and illustrate some of the hardships involved in carrying out that mission.

Developing A Botanical Garden

—Alan Godlewski
Chairman, Horticulture Department

I was recently afforded the privilege of visiting Madagascar in the capacity of an advisor on operations for the botanical garden at Parc de Tsimbazaza in the capital city of Antananarivo. Madagascar is the fourth largest island in the world, located just south of the equator off the eastern coast of Africa. It is essentially a tropical habitat with a unique flora and fauna, due to its island status. The flora is truly remarkable with a very high degree (80-85%) of endemism; that is, peculiar only to Madagascar, comprising eight endemic families and at least 8,500 species. The Missouri Botanical Garden has embarked upon a collaborative effort with Malagasy botanical scientists to initiate a comprehensive botanical survey of Madagascar in an endeavor to document this unique flora. In practical terms, this constitutes one of our scientific staff (Dr. Dorr) living there full time, working with Malagasy scientists in the collecting effort. The Parc de Tsimbazaza is also the location of the national herbarium.

The Parc de Tsimbazaza itself has a series of living collections of plants and animals as well. The fauna in Madagascar is also very interesting and is the home of the lemurs. The living plant collections constitute a palmery, a rock garden of Malagasy plants, a rock garden of African and American desert plants, a collection of *Pandanus*, and several collections of bamboo. The park is quite dramatic in its overall setting, being quite hilly and having several lakes within the overall design. The islands in the lake were utilized for lemurs. The lakes have large aroids *(Typhonodorum lindleyanum)* in various places along the margin, creating a very exotic effect.

The future effort of the park will be to increase effectively the number of Malagasy plants, rebuild the existing ornamental and economic plant collections which will grow at this site and ultimately interpret these collections to visitors as a mechanism to make the visitor aware of the uniqueness of the flora of this large island country.

Left top: A local cutting up the Kapok tree *(Ceiba pentandra)* blocking the road. He is wearing a Lamba, or skirt, which is common in western Madagascar.

Left: We had three flats at once. It was 3 kilometers to the nearest village.

Left: Michel, our driver, with a branch of the Apocynaceae family which the locals called "Godro" or tar tree. The latex from this plant was used to patch our inner tube temporarily.

Trials On The Trail

April, 1984

GREETINGS! I returned Easter Sunday to Antananarivo after two weeks of collecting at Ampijaroa-Antkarafantsika, a forest about 100 kilometers south of Majunga. I hope that I never have a trip like that one again in my life. I am sure it added a few gray hairs to my beard.

It took us 20 hours to drive from Antananarivo to Ampijaroa, a distance of 500 kilometers. The road was horrible. We had one flat tire which was not such a great problem, but we broke our tire iron fixing it. Outside of Ampijaroa we had to detour through the woods to get past a stretch of road that had ruts waist deep.

The first week of collecting was great fun. I criss-crossed the forest on trails that O.R.S.T.O.M. (the French overseas scientific organization) had cut years ago to facilitate the study of the mammals of this forest. I had sifaka, large lemurs, watching me each afternoon as I pressed plants and I even went into the forest at night to see the nocturnal Lepilemurs. Then a cyclone hit the coast at Majunga, passed through Ampijaroa and continued on to Diego-Suarez. It rained hard, with winds reaching 180 kilometers per hour. Large trees cracked like twigs and the highway was completely blocked. Ampijaroa had one of the worst stretches of road. It took three days to clear all the trees. At one point there were 60 trucks to the south and 15 to the north waiting to pass.

Like fools, we decided to visit another forest outside Majunga. Three days after the cyclone, we drove from Ampijaroa to the coast. One stretch of the road crossed a long dike and it was obvious that the dike had been damaged by the storm. We continued nonetheless. Majunga was devastated. Almost 80 percent of the houses were destroyed and we were told 70 people were killed. High tides and flooding added to all their problems. We never found the forest we were looking for and started back to Ampijaroa after two days. As you may have guessed, the dike broke while we were in Majunga. The only way back was over a 40 kilometer detour over roads that were no more than trails. At about midnight we got stuck in mud waist deep and couldn't get the truck out. The four-wheel drive was broken and we didn't have a winch. Four hours later a caravan of taxi-brousse came by and since we blocked the road all the passengers, about 50 people, pitched in and helped push us out. We arrived back at Ampijaroa at 5 a.m., covered with mud, and all promptly fell asleep.

Up until this point we had had a total of four flat tires. Combined with the problems caused by the cyclone we thought it best to return to Antananarivo. Thursday we started back. Everything went fine until we started up the Haut Plateau. We had our fifth flat. We changed tires and then at the same time we had our sixth and seventh flat tires! We blocked the car, pulled the bad tires and rolled them 3 kilometers to the nearest village. Fortunately there was a mission in the village and the priest had a pump. We had been wise enough after our fourth flat to buy some glue and patches, but the patches wouldn't stick. Out of desperation we used the latex of a species of Apocynaceae which the Malache call "Godro" (a corruption of the French word for tar) to glue the patches on to the inner tubes! We couldn't get enough pressure with the priest's hand pump so we had to wait for a truck with air brakes to pass so we could tap the truck's compressed air to inflate our tires properly.

On Saturday we left the mission. Our eighth flat occurred 5 kilometers down the road and for fear of spending our lives in that village we continued on without a spare. We had our ninth flat 100 kilometers from Antananarivo and were able to patch it. Arriving in Antananarivo we had our tenth flat. In a perverse way this situation was becoming comical. We were too tired to think about Easter and went to sleep in our offices at the Parc de Tsimbazaza as the sun was coming up.

I'm ready to go back into the field again, but I much prefer to be properly equipped with a good car, four-wheel drive and a winch!

—Dr. Laurence Dorr

Editor's note: In the last year the Missouri Botanical Garden has purchased two four-wheel drive vehicles for the Madagascar project, thereby eliminating many mechanical problems.

NOVEMBER-DECEMBER

HIGHLIGHTS

NOVEMBER 1

Friday

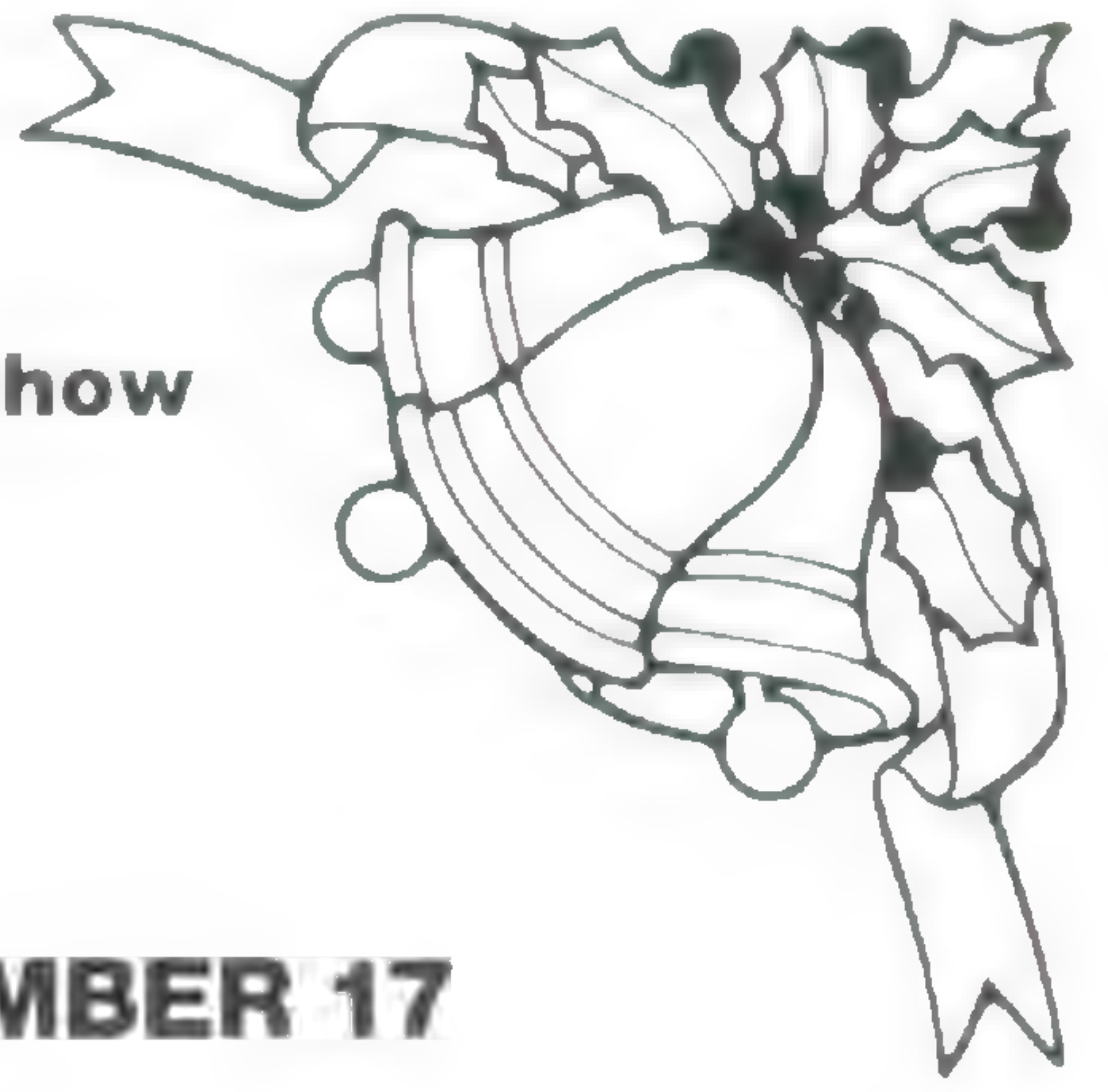
Members' Preview of Fall Flower Show

5:30 p.m.-7:30 p.m., Orthwein Floral Hall. Come and enjoy an early view of the splendor of a Fall Country Harvest. The show features mums, gourds and other autumn plants in a setting complete with a log cabin and a covered wagon.

NOVEMBER 9, 10 *Saturday & Sunday*

"Ain't Misbehavin'"

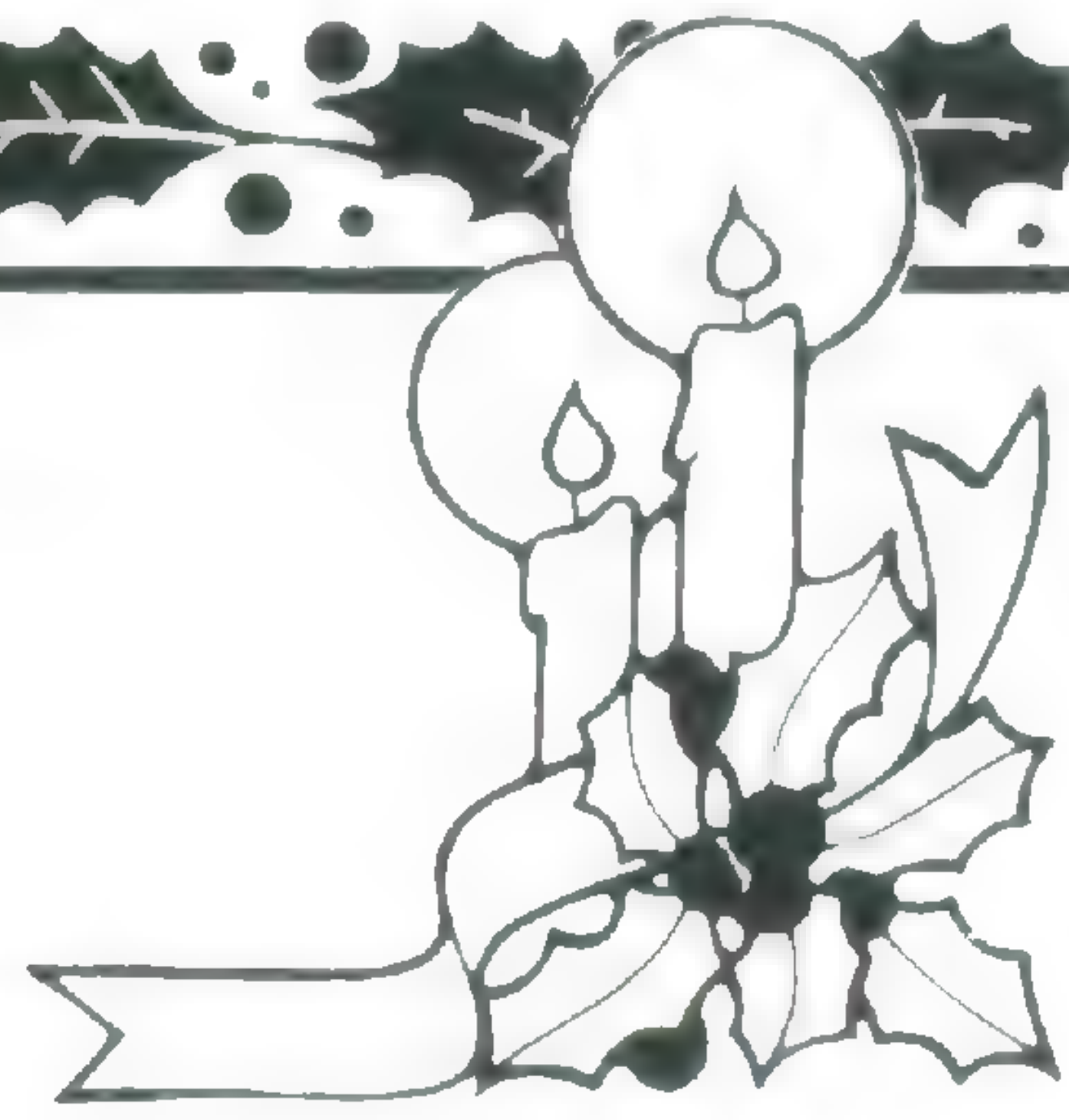
8 p.m. Shoenberg Auditorium. The St. Louis Black Repertory Company will present a foot stompin', high hattin' musical tribute to the legendary Fats Waller. Tickets are $5 for Members, $6 for non-members, available at the ticket counter in the Ridgway Center.



DECEMBER 6 *Friday*

Members' Preview of the Holiday Flower Show

5:30 p.m.-7:30 p.m., Orthwein Floral Hall. "¡Feliz Navidad!" Take a trip south of the border at this year's Holiday Flower Show which will feature a replica of a Spanish mission complete with poinsettias, cacti, hot peppers, piñadas, serapes and more. Show runs through January 1.



Yuletide at Tower Grove House

Tower Grove House will again be decorated in Victorian splendor for the holidays and open to visitors from Saturday, December 7, through Monday, December 30. The house and the Garden will be closed Christmas Day.

The Third Annual Candlelight Tour, sponsored by the Tower Grove House Auxiliary, will be held on Wednesday, December 11, between 4:30 p.m. and 7:30 p.m. Reservations may be made by calling Tower Grove House, 577-5150, or by mailing in the reservation form below. The fee includes a candlelight tour of the decorated house, plus refreshments in the Tea Room. Admission will be through the Cleveland Gate, 2221 Tower Grove, where your name will be registered.

Tower Grove House Auxiliary's Tea Room will be again having Special Christmas Luncheons on Monday, December 9, Tuesday, December 17, Wednesday, December 18, and Thursday, December 19, 1985.

For additional information and reservations call 577-5150.

☐ Please make __________ reservations for the **Candlelight Tour**, Wednesday, December 11, Tower Grove House between 4:30 and 7:30 p.m.

☐ Enclosed is my check for $____________, at $5.00 per person. Please make checks payable to: Tower Grove Auxiliary.

NAME____

ADDRESS____

CITY____________________STATE__________ZIP__________

Mail to: Tower Grove House, P.O. Box 299, St. Louis, MO 63166.

DECEMBER 17

Sunday

House Plant Clinic

11 a.m.-3 p.m., Ridgway Center. Garden horticulturists, Master Gardeners and Plant Shop staff will be on hand to diagnose your ailing plants and answer questions on keeping your plants healthy through the winter. Demonstrations on pruning, potting and propagation. For Members only.

DECEMBER 13

Friday

Supper With Santa

Two seatings—5:00 p.m. and 6:15 p.m., Gardenview Restaurant. Dine with jolly old St. Nicholas, get a photo with Santa, see the Bob Kramer Marionettes, clowns and more surprises. Dinner is $8 per person, photos with Santa $4. Call 577-5125 for reservations beginning November 25.

NOVEMBER-DECEMBER

DAY-BY-DAY

NOVEMBER

2-24 **A Painter Named Smith**
9 a.m.-5 p.m. daily, Monsanto Hall. A retrospective look at more than 50 years of oil paintings by artist Wallace H. Smith *(See pages 10-11.)*

2-24 **Fall Flower Show**
10 a.m-5 p.m. daily, Orthwein Floral Hall. *(See Highlights.)*

9-10 **"Ain't Misbehavin'"**
Saturday & Sunday, 8 p.m., Shoenberg Auditorium. *(See Highlights.)*

6 **Preview of Holiday Flower Show**
Friday, 5:30 p.m.-7:30 p.m. Orthwein Floral Hall. *(See Highlights.)*

DECEMBER

7 **Holiday "Tree" Exhibit**
Through January 1, 9 a.m.-5 p.m. daily, Monsanto Hall. Six St. Louis area artists will feature their interpretations of holiday trees. The "trees" will be made of such unusual materials as paper, clay and neon. Also featured will be a special Members' tree. An exhibit not to be missed. *(See page 3.)*

7-30 **Yuletide at Tower Grove House**
10 a.m.-4:30 p.m. daily, Tower Grove House. *(See Highlights.)*

7 **Family Day**
Saturday, 11 a.m.-4 p.m., Ridgway Center. Members will be treated to a day of holiday activities the entire family will enjoy. Start the day by getting a family portrait taken with Santa, enjoy carolling, folkdancing and more.

11 **Tower Grove House Candlelight Tour**
Wednesday, 4:30 p.m. and 7:30 p.m. *(See Highlights.)*

13 **Supper With Santa**
Friday, 5:00 p.m. and 6:15 p.m. *(See Highlights.)*

21 **Sounds of Christmas**
Saturday, 11 a.m.-4 p.m., Ridgway Center. Enjoy the many musical sounds of Christmas. A brass quintet, bell ringers, carollers, a string quartet and other musical groups will fill the air throughout the day.

25 **Christmas Day**
The one day during the year when the Garden is closed. Have a happy holiday season!

EDUCATIONAL OFFERINGS

NOVEMBER

2 **Basket Making**
Saturday, 10 a.m.-4 p.m., Shaw Arboretum Visitor Center. Learn the old art of basket weaving to create your own traditional potato basket. $20 Members, $24 Non-members.

3 **How to Grow African Violets**
Sunday, 1:30 p.m-3:30 p.m., Ridgway Center. Growing beautiful African violets is not hard if you know a few fundamentals and "tricks." $6 Members, $7 Non-members.

6 **Intermediate Floral Design**
(Three sessions, November 6, 13 & 20) Wednesday, 7 p.m.-9 p.m., Ridgway Center. A course designed for those with previous flower arranging experience. $60 Members, $72 Non-members.

7 **Selecting a Tree Care Service**
Thursday, 7:30 p.m.-8:30 p.m., Ridgway Center. The trees in your yard are prized possessions—don't let just anyone prune, spray or fertilize them. $4 Members, $5 Non-members.

14 **Training and Pruning Fruit Trees**
Thursday, 7 p.m.-9 p.m., Ridgway Center. Learn proper techniques for keeping your trees healthy and productive. $5 Members, $7 Non-members.

15 **Night Hike**
Friday, 8 p.m.-10:30 p.m., Shaw Arboretum Visitor Center. Come and enjoy star gazing; walk in the moonlight and listen to the animals, birds and insects of the night. $4.50 Members, $5.50 Non-members.

16 **Clay Creations**
Saturday, 10:30 a.m.-noon, Ridgway Center. Come and make a special gift for the holidays. $7 Adult, $5 Child.

22 **Night Hike**
Friday, 8 p.m.-10:30 p.m., Shaw Arboretum. (See November 15 above.)

DECEMBER

2 **Plants and Nutrition**
(Six sessions.) Mondays & Wednesdays, December 2, 4, 9, 11 & 18, 7 p.m.-9 p.m., Ridgway Center. Offered in conjunction with St. Louis Community College, this non-credit course explores the nutritive value of plants as food. $24. 644-9175, course GNG-709-430.

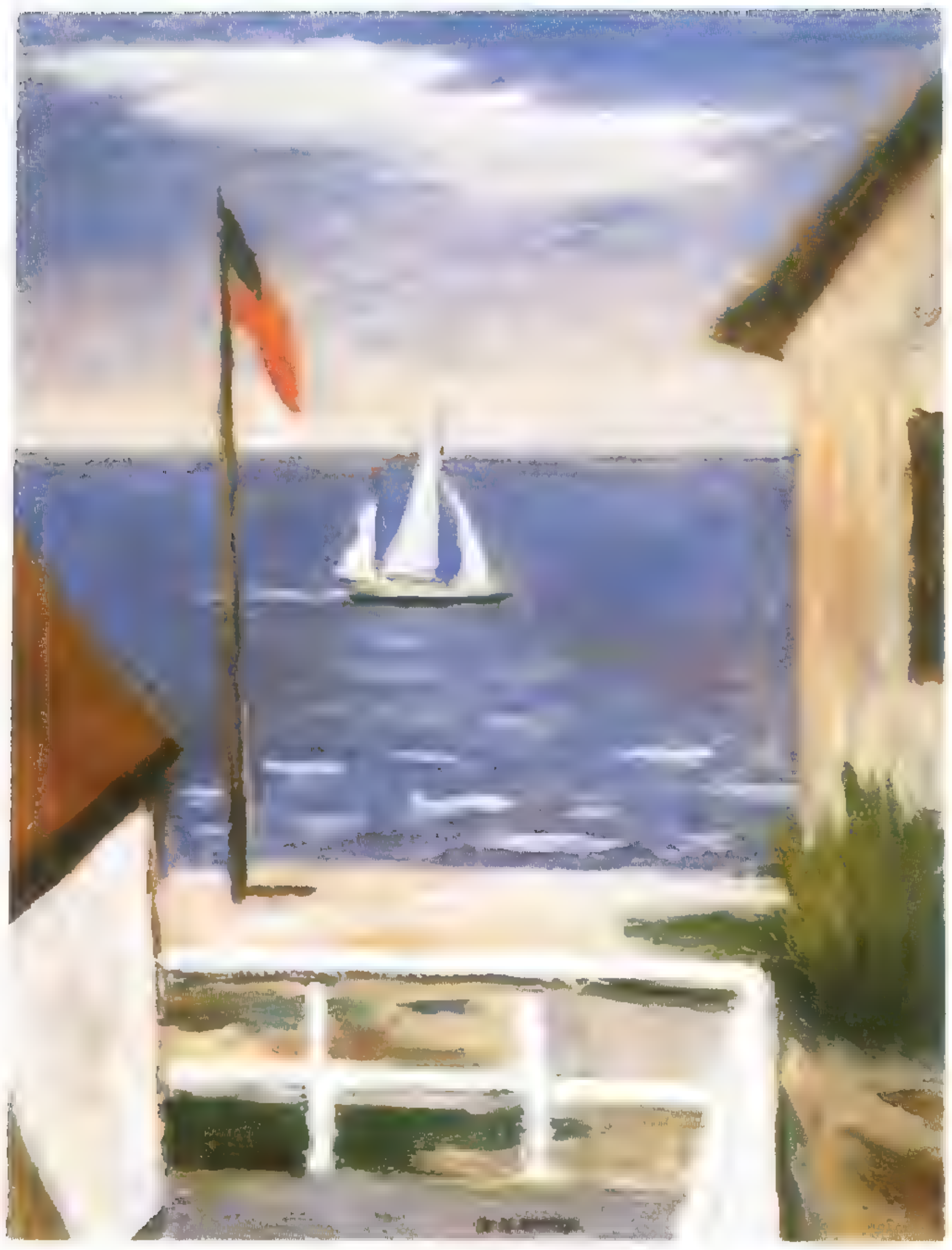
7 **Natural Tree Ornaments**
Saturday, 10 a.m.-2 p.m., Shaw Arboretum Visitor Center. Make a variety of ornaments for your tree from pine cones, spices and seed pods. $10 Members, $12 Non-members.

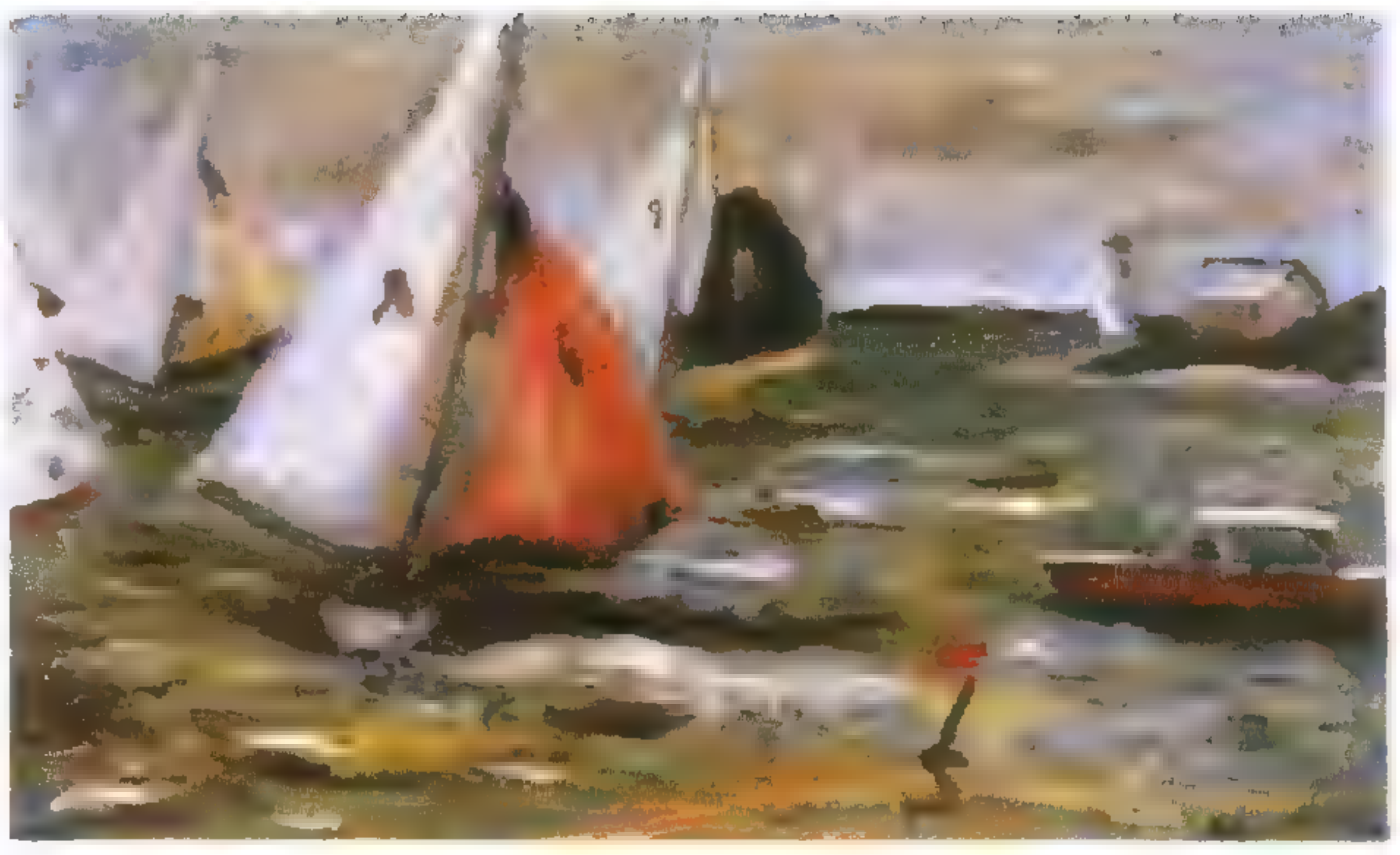
7 **Finding Your Way With Map and Compass**
Saturday, 9 a.m.-3 p.m., Shaw Arboretum Visitor Center. You'll never get lost again once you learn the art of orienteering. $7 Members, $8.50 Non-members.

9 **Holiday Spice Tree**
Monday, 10 a.m.-noon, Ridgway Center. Make tree ornaments with spices to bring the aroma of an old fashioned holiday to your home. $12 Members, $15 Non-members.

12 **Della Robia**
Thursday, 10 a.m.-noon, Ridgway Center. Learn the 18th century art of decorating evergreen wreaths with fresh fruit, nuts and seed pods. $20 Members, $24 Non-members.

13-14 **Wreath and Centerpiece Workshop**
Two sections, Friday and Saturday, 10 a.m.-noon, Ridgway Center. Create a beautiful natural holiday wreath and centerpiece. $25 Members, $30 Non-members.

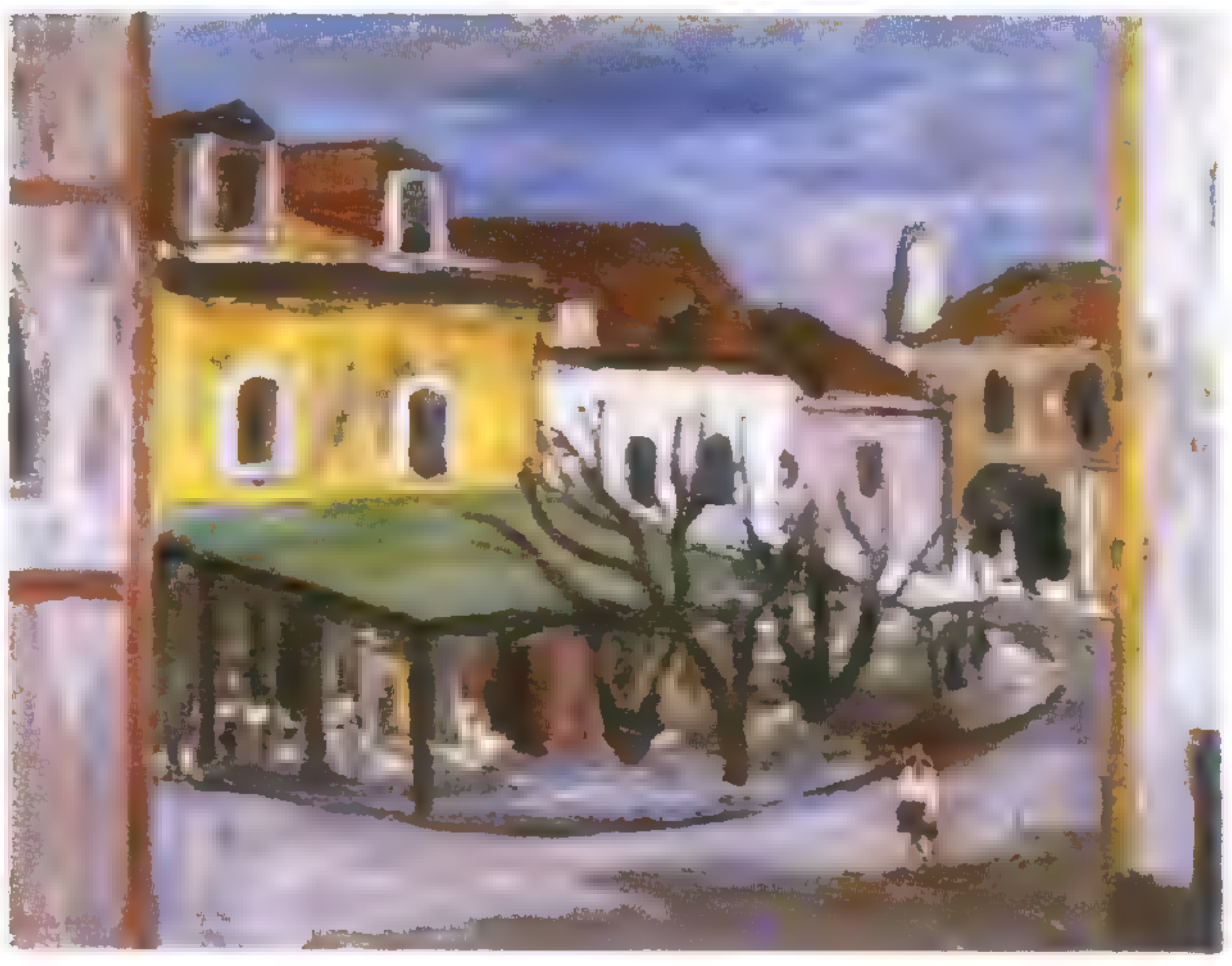




(Far left) Nantucket, c. 1965

(Left, top)
Sailing at Harbor Springs, c. 1968

(Left, bottom)
Green Cafe—Portugal, c. 1970



Mr. and Mrs. Wallace H. Smith
in the garden of their
home in Ladue, Missouri.

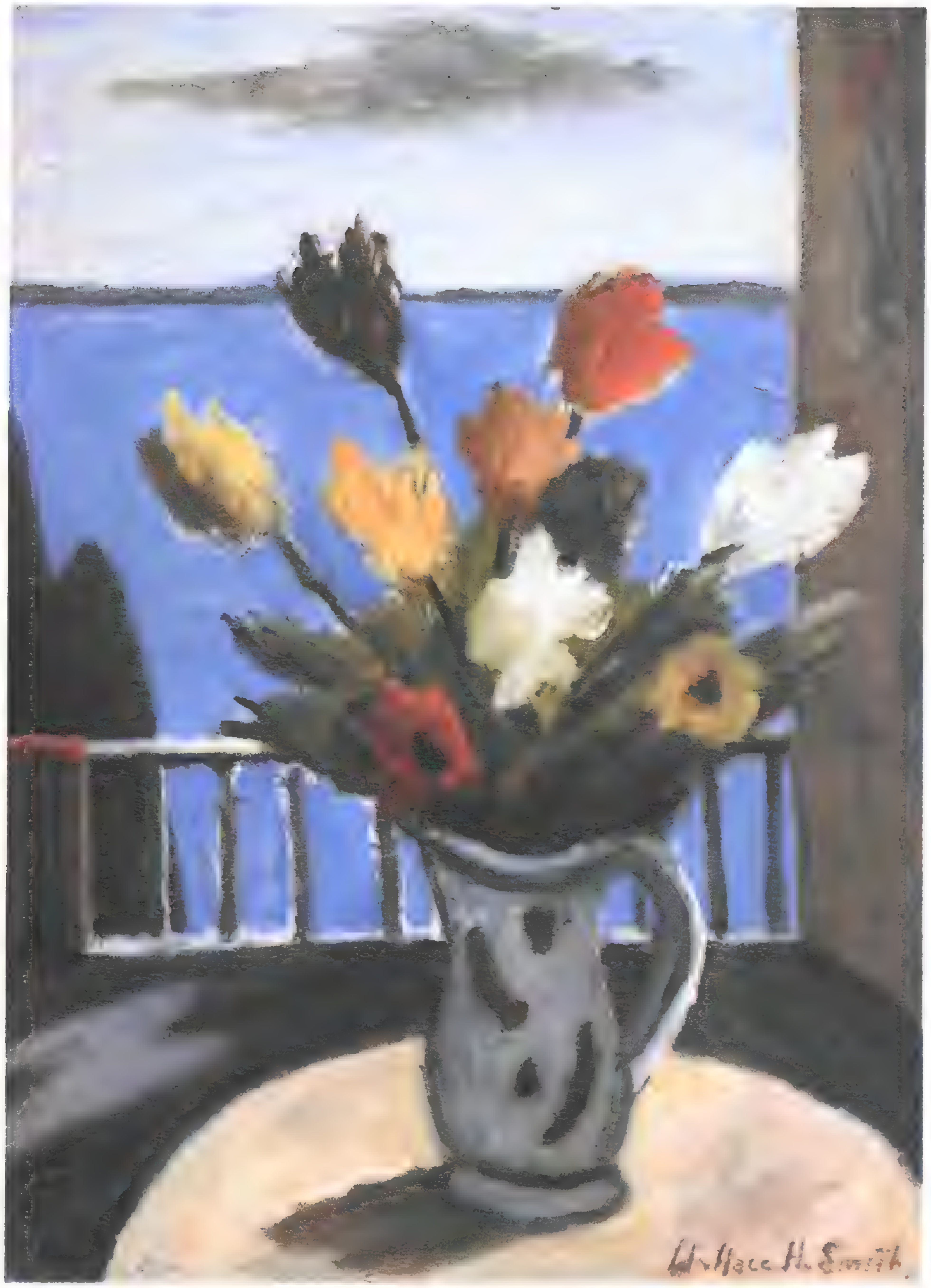
A PAINTER NAMED

WALLACE HERNDON SMITH has lived and painted in St. Louis for most of his eighty some years. Known to friends and family as a four-star raconteur, bon-vivant, intrepid racing sailor, and jolly companion, he has earned his reputation for *bonhomie*, for singing and dancing and storytelling through good and troubled times, for cheering up his chums, for answering pomposity with sparkling mischief, and for bouquets of elegant charm tossed casually into the days of those who enjoy knowing him. Just ask anyone who does know him. You'll learn that he can lift a glass or crack a joke or dish up a clever one-liner with the world champions of wit and style. Those who know him will tell you: he's fun to know, easy to love.

Ironically, however, he is not known well for doing what he best loves: painting. For he is, above all else, a serious painter, a painter who can reveal aspects of nature and of the human mind through his treatment of paint on a two-dimensional surface. Behind the clever chat and the drawing room wit, the painter has been alone, at work, and answerable only to his own sense of order.

Wally has painted for more than five decades. He has patiently pursued his subjects, fretted over real and imagined failures in his work and, in the solitude of his studio, has tried in paint to decipher the codes and signals of basic form in the observable world. From time to time, his work has been exhibited in Paris and New York as well as in St. Louis. Yet, despite good reviews and the admiration of artists and museum curators, he and his work have remained outside the mainstream of American art.

Over the last few months, as I've looked at the paintings—several hundred of them, some almost forgotten even by the artist—as I've pawed greedily through scrapbooks and notebooks and talked with Wally about being an artist, about his life



Smith is well-known for floral still-life paintings. This picture, in a northern Michigan setting, graces the Garden's poster for the current exhibit. Posters are available at the Garden Gate Shop.

SMITH

in Paris and New York under the bright lights shed by the likes of Hopper, Kuhn, Brook, and Benton in the days preceding the Second World War and the cultural tidal wave of abstract expressionism, I've sensed the seriousness and dedication which have driven this artist through most of the years of his life.

Now the yield of that seriousness, that dedication, and of his singular talent will be evident in Wallace Smith's first retrospective exhibition this month at the Missouri Botanical Garden. Why, in an age when museums set before us with dreary regularity the "retrospective exhibitions" of artists in their thirties, is Wallace Smith's work only now being extracted from the studio and put before the public? I think that a number of forces, some historical and cultural and some of Wally's own making, have conspired to isolate Wally from his natural audience.

Wallace Smith has lived through a period—most of the twentieth century—in which American art was first not taken very seriously, was viewed in comparison to European art and often assumed to be inferior. When the storm troopers of abstract expressionism broke down the walls around American art, they also captured the land and claimed the throne. Many good and some quite good American painters working outside the abstract expressionist vein were almost invisible to the critics, collectors, museum directors, and the public. Wallace Smith's paintings are frankly quite quirky, the off-the-beaten-path images of an individualist whose sparkling social life served to balance and shield an intensely private life in and for art.

In studios in St. Louis and Michigan, wrapped by the obscurity woven of cultural forces and his own need to hold painting separate from the rest of his life, Wally pursued themes that allowed him to paint what every serious artist finally paints: namely, his own vision of reality, metaphorically constructed. He uses traditional subjects and themes—landscapes, seascapes, still lifes, and cityscapes—to simplify form, to explore tonalities, color, and to find coherence and expression of intellectual and spiritual order in painting.

When his first major retrospective opens this month in the Missouri Botanical Garden, Wallace Smith's paintings will reveal the artist in the act of transforming ordinary scenes into lucid celebrations of order, an order that surpasses the isolation that spawned it. *–Lee Hall*

DR. LEE HALL is Senior Vice President of the Academy for Educational Development, New York, and was, for eight years, President of the Rhode Island School of Design. A distinguished painter herself and nationally recognized art scholar, writer and lecturer, Dr. Hall is curator of the Smith show for the Garden. She is also author of a forthcoming book on the lifetime of work of Wallace H. Smith, as well as a television documentary, "A Painter Named Smith," scheduled for release in 1986. Dr. Hall's own show of paintings opens in New York, January 1986 at the Armstrong Gallery.

FROM THE MEMBERSHIP

Membership Survey—Part II

In April the Membership Department sent a survey to a random sampling of Garden Members. The survey was to find out who, you, the Garden's Members are, why you joined and how you feel about the Garden. You responded in an overwhelmingly positive fashion.

In the last issue of the *Bulletin* we reported on the visiting patterns and Members' preferences in terms of benefits and events. A profile of the Garden's Membership is presented here.

Even though we all know there is no such thing as "typical," if a living breathing, walking, talking Missouri Botanical Garden Member were to be described, she would be married, between the ages of 45 and 65, with no children living at home. This Member would have either a college or postgraduate education and a household income of $30,000 to $50,000. This Member would have joined the Missouri Botanical Garden through a mail offer, and would have joined three to five years ago. This Member would also visit the Garden three to five times throughout the year.

If you don't fit this description, you're not alone. The Missouri Botanical Garden's Members come in all ages, join for various reasons and, of course, everyone has their favorite part of the Garden. Here are a few comments from our Members . . . "I really enjoy cultural activities in the Garden setting and also classes, lectures and outdoor nature activities for myself and my children."

"The Japanese Garden is greatly appreciated."

"I enjoy taking visitors to the Garden. Everyone I have introduced to it is deeply impressed . . . thank you for the beauty and joy!"

"The Garden is one of the most beautiful I have ever visited. The shop, restaurant and special classes offered are wonderful. Keep up the good work!"

"To my children, going to the Garden is like going to the park."

"The Garden is my retreat from a troubled world."

"We love the Garden!"

Win A Trip To Mexico!

Olé! Visit this year's holiday plant show with a south of the border theme and you will have an opportunity to win a trip for two to Mexico. This festive holiday giveaway is made possible through Judy Poll Travel, Inc., and American Airlines. Thanks to Judy and American Airlines you could be the lucky winner of an eight day, seven night Mexican Holiday to any American Airlines destination in Mexico. Deluxe hotel accommodations, complete with taxes and transfers will be awarded to the winner of this holiday drawing. For further details, rules and regulations, and your chance at a ticket for two south of the border, visit this year's holiday activities at the Ridgway Center!

Members' Events

Don't miss these Members' Events during the months of November and December:

November 17—
11:00 a.m. to 3:00 p.m., House Plant Clinic. Bring in your troubled plants for an Rx and for various demonstrations and lecture topics.

December 6—
Members' Preview of the Holiday Plant Show and Tree Exhibit.

December 7—
Family Day at the Holiday Plant Show and Tree Exhibit will be a day of fun and festivities.

GIVE THE GIFT THAT GROWS

All Garden Members have an opportunity to do some very easy holiday shopping. You can give the gift of the Garden to friends, relatives or business associates by mail or phone. And with each gift membership to the Missouri Botanical Garden, a dated 1985 Missouri Botanical Garden tree ornament will be sent along with the membership.

A gift of the Garden is the perfect gift for the person who has everything, nature lovers, or the person who deserves a break from life's hectic pace. With discount rates for multiple memberships, your holiday gift shopping is made more affordable and easier than ever! Two regular gift memberships can be given for $65.00 and three gift memberships can be given for $85.00. One gift membership is available for the regular price of $35.00.

Order your gift memberships with the 1985 Missouri Botanical Garden tree ornament included by completing the mail order gift form you will receive in the mail or by calling the Membership Department at 577-5118.

RECIPROCAL FREE ADMISSION UPDATE

The Membership Department is proud to announce that Hershey Gardens and the Dallas Arboretum and Botanical Society have been added to the list of botanical institutions participating with the Garden on a reciprocal free admission plan. This brings the total number of participating institutions to seven, including the Massachusetts Horticultural Society in Boston, the Chicago Botanic Garden and the Blithewold Garden and Arboretum, the New York Botanical Garden and the Morris Arboretum. All Garden Members can visit these institutions free of charge.

The People's Choice

Dahlia number eight, a large red dahlia with white tips, was the winner of the "People's Choice" category at the Greater St. Louis Dahlia Show, September 28 and 29, at the Garden. The exhibitor was Bernard La Blance of Fairview Heights, Illinois.

Costa Rican Expedition

The Missouri Botanical Garden and Betchart Expeditions are proud to announce a unique travel opportunity to the National Parks of Costa Rica.

You may ask . . . why Costa Rica?

Why Costa Rica? Because it is a country that does what it says it is going to do. The people said they wanted peace, so they eliminated the army in 1949. They said they wanted education. Now the country's literacy rate is 91 percent—the highest in the Americas.

Costa Ricans also said they wanted natural lands and natural resources safeguarded for the long haul. So, only 12 years ago, they began creating a national network of parks, wildlife refuges, national monuments, archaeological sites, and forest reserves. It now encompasses some 25 percent of the country—a total of almost three million acres. The Costa Rican government has spent tens of millions of dollars for its national parks and biological reserves alone; now they cover eight percent of the national landscape—one million acres.

Costa Rica is the biogeographical land bridge in the Isthmus of the Americas, a topographically diverse country where the flora and fauna of North and South America meet. It is also a bridge in another sense, for it serves as a place where northern and southern cultures and political beliefs can meet, where we can more easily learn about the hopes and aspirations of our neighbors. Amidst the turmoil of recent events in Central America, Costa Rica remains an island of stability.

The Campaign for Costa Rica National Parks, developed by the Costa Rica National Parks Foundation, is a non-profit conservation organization. The goals of the $5.5 million, five-year campaign are to acquire remaining private lands still unprotected within the parks and reserves and to preserve habitat for every species of Costa Rica's flora and fauna. As far as we know, it is the first effort of its kind in the world.

Many other conservation organizations are also active in Costa Rica: the Nature Conservancy, World Wildlife Fund-U.S. The Organization for Tropical Studies and the Missouri Botanical Garden employ a resident botanist in Costa Rica.

So why not Costa Rica?

An excellent introduction to the tremendous diversity of habitats and wildlife in Costa Rica, this 15 day expedition includes a special look at the superb national parks and reserves of Costa Rica, led by the Garden's own Dr. Thomas Croat and Dave Whitacre, a Betchart Expeditions Naturalist. This will certainly be an extremely exciting travel opportunity. This expedition is planned for the nature enthusiast who would enjoy exploring some of Costa Rica's finest national parks and learning about the national park system, flora and wildlife of the American tropics. Travel is by motor coach, chartered plane, motorboat, and jeep, with daily outings on foot of one to two miles, at a leisurely pace, suitable for nature study. This trip will be a tremendous experience for travelers with an appetite for adventure, who can enjoy some modest accommodations. The cost of the trip is $2,250 (plus air fare) for 15 days.

For questions or reservations, please call Dana Hines, membership coordinator, Missouri Botanical Garden, 314-577-5108, or Rita Royal or Margaret Betchart, Betchart Expeditions, Inc. 408-245-9517.

Also, join us for a Costa Rican Travelogue, Thursday, January 16, in the Shoenberg Auditorium. Dr. Tom Croat and Betchart Travel will host this slide show and lecture.

Portions of this article were reprinted from The Nature Conservancy News. *January/February 1984.*

Education Department Receives Grant

The Missouri Botanical Garden Education Department's ECO-ACT Environmental Leadership Program has been awarded a planning grant of $1,000 from the Science Teacher Education at Museums (STEAM) program that is funded by the General Electric Foundation.

The grant will help the Garden develop a science teacher education program to implement ECO-ACT directly in St. Louis area schools. The purpose of the planning grant is to explore with area teachers and science supervisors methods for including a teaching component in high school environmental science classes. High school students would then teach ecology and environmental science to elementary school children on a regular basis.

Garden Receives Operating Grant

Missouri Botanical Garden has been awarded a $75,000 General Operating Support Grant from the Institute of Museum Services (IMS). The money will help meet operating costs between July 1. 1985 and June 30, 1986. The award is the largest IMS makes individually and $25,000 more than the Garden was awarded last year.

"The IMS grant is unique in that the money is for operating costs only," said Patricia E. Rich, director of planning and development for the Garden. "Most grants are for specific projects. This money will help us in our day-to-day operation."

IMS is a federal agency that provides general operating support to the nations' museums, and recently awarded 449 grants totaling $16,723,000. IMS had received 1,264 applications for 1985 funding.

Soule Center Offers Activities for Seniors

A unique program began in the late spring of 1984 as a result of the generous contributions of the family and friends of Dr. Samuel D. Soule on the occasion of his 80th birthday. Dr. Soule envisioned the Center as a way to expose more senior adults to the Garden's collections by "hands-on" experience with plants.

The Center is a unique horticultural program especially designed for active older adults which combines a visit to the Garden's grounds followed with a "hands-on" learning activity. The programs, which are held monthly and reflect the seasons, may, for instance consist of a guided tour through the Japanese Garden followed by a class in Ikebana, the Japanese art of flower arranging.

A variety of other walks with related follow-up activities are also featured. Programs can be designed for groups with special needs upon request. All programs are taught by the Garden's staff and skilled volunteer Master Gardeners.

The Center also recognizes that there are many active senior adults who cannot come to a program at the Garden for various reasons. For them the Center has established several export programs which can be brought to senior citizens groups, nursing homes and retirement centers. These programs are: *Armchair Tour of the Missouri Botanical Garden, Plants of the Bible, Indoor Plant Culture, Around the World in Flowers, Growing African Violets* and *The Japanese Garden of Missouri Botanical Garden*.

During the first half of this year, the total number of groups serviced at the Garden and in the export phase of the program were 42 with a total of nearly 1,500 senior adults participating in the program.

The Center is under the direction of Glenn Kopp, adult program coordinator, in the Education Department. Glenn publishes a newsletter for the Center which announces the programs and their dates. The newsletter is widely distributed and mailed to the extensive list of agencies on aging, senior citizens' retirement and nursing homes, and members of the Samuel D. Soule Center.

Membership in the center is free. Although senior citizens are already admitted to the Garden free of charge, there may be a nominal fee for materials for some classes. These fees, if any, are announced in advance. Membership in the Missouri Botanical Garden is not required.

Organizations and individuals wishing to participate should register by calling the Garden's Education Department at 577-5140 or by writing to the Garden. A membership card will be issued to all participants and will enable the holder to participate in future programs at the Center.

Contributions to the Center in celebration of Dr. and Mrs. Soule's 50th wedding anniversary are welcome.

The Center's programs will continue to expand and offer exciting educational opportunities—"for the young at heart."

VOLUNTEER PROFILE—

Garden Guide
John W. Scott

Given its brief and ever changing circumstances, guiding tours at the Missouri Botanical Garden is an art. One of the Garden's "artists" is John W. Scott.

The Garden guides vary in background and expertise. Each is an individual and brings a different perspective to the group in his or her care, dependent on his or her understanding of the tour subject. To the visitor, the focus of the tour comes from the depth with which each guide directs them through the experience. Interests and emphasis of the guide are revealed as the tour unfolds.

For John Scott, the fact of being one of the few male guides among some 65 females and also being a Missouri Botanical Garden Master Gardener combine to give his tours a unique perspective.

The focus of John's tours are brushed with history of the St. Louis region as well as that of Henry Shaw. Considering himself a bit of an expert in the historical background of the area, John boasts membership in the State Historical Society, and Florissant Historical Society. He is also a former member of the board of Taille de Noeyer, the home of millionaire John Mullanphy. The Civil War is another of John's special interests. He is currently finishing the Bruce Catton historical volume, *The Civil War*.

His enthusiasm for guiding stems from a love of people and gardening which is evident by his association with the Master Gardener program, The Missouri Extension Service's speakers bureau, the Missouri Botanical Garden's speakers bureau and a 20 year association with the Boy Scout Council of Greater St. Louis.

Roses are his first love in personal gardening. Courses with the Garden's rosarians have expanded his knowledge. As a part of the Soule Center for Senior Citizens Rose Day ceremonies at the Garden, he demonstrated his interest by giving a presentation on roses. Since then he has also participated in the Soule program's export service which takes programs to people who cannot come to the Garden in person.

The feeling of warmth which comes to a volunteer guide when a group has completed its tour is often expressed by the familiar phrase John uses to tell why he volunteers at the Missouri Botanical Garden, "I like people."

Plants To Remember

Sweetautumn Clematis

Clematis maximowicziana—Sweetautumn Clematis (sometimes called *C. paniculata* in the trade).

One of the most striking (and hard to pronounce) plants of the season, Sweetautumn Clematis is one of the most unusual plants with outstanding features; a fast grower, beautiful flowers, and easy culture.

You may have noticed this vine rambling over fences, trellises, or other plants. It can be a rampant grower if given a strong support (climbing two to five feet per year). Since it is a twiner, it won't damage woodwork or masonry but does require help to get established. One of its most exciting features are its fuzzy white terminal flowers abundant from late August into October. It looks like snow has fallen on the plant.

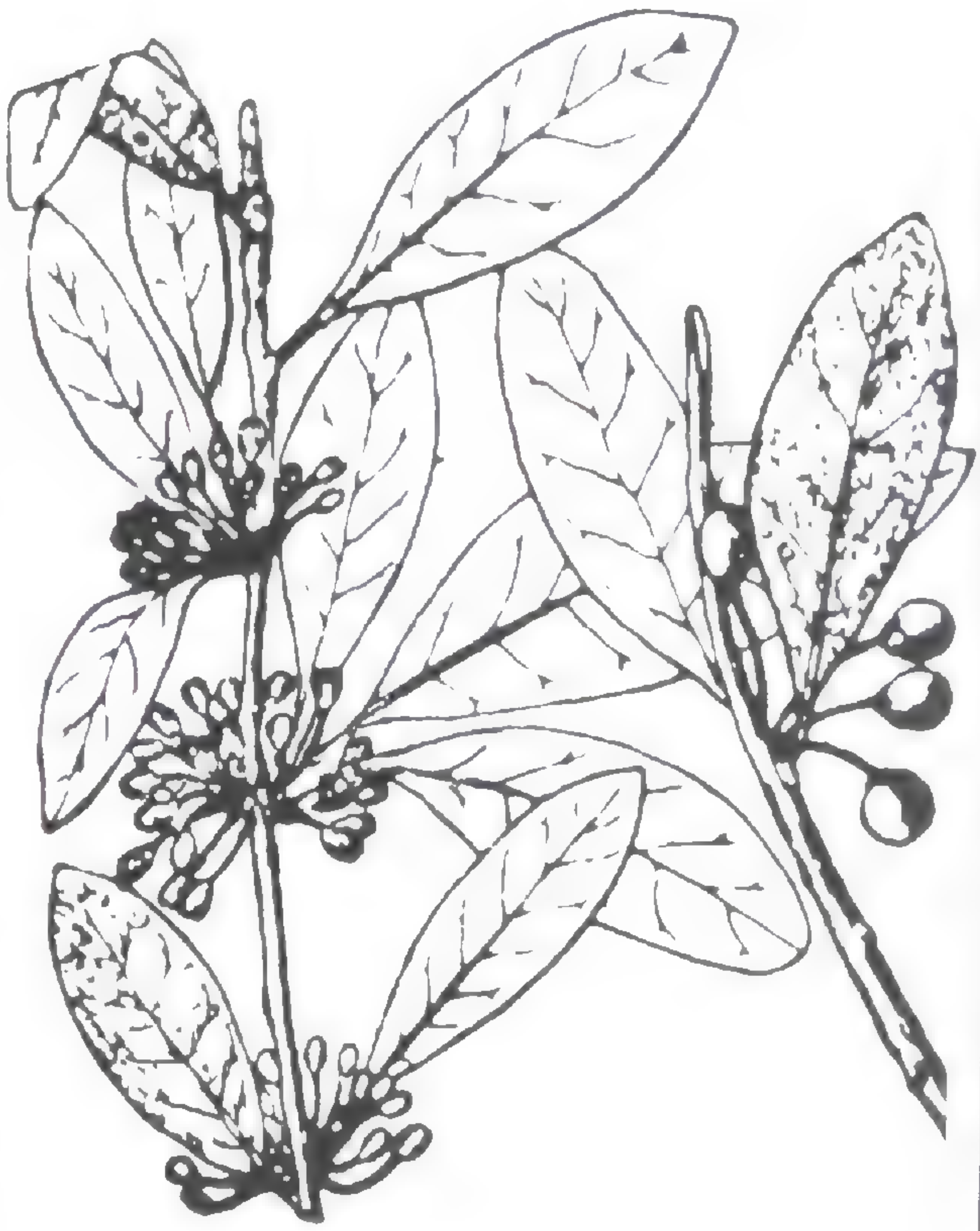
Provide these plants with the right cultural conditions and they will thrive for you. These plants won't tolerate hot, dry soil so provide at least partial shade, and mulch to keep soil cool. Then give it plenty of water and a well-drained location for an excellent vine with an outstanding flower show in late summer. *–B.J. Jarvis*

NEWS FROM THE SHAW ARBORETUM

The Gum Bumelia

Shaw Arboretum's location, on the northern edge of the Ozarks near the Missouri River, provides a variety of soils and habitat, resulting in a great variety of trees and shrubs. One of the most unusual is a small tree called the gum bumelia. Another common name is wooly buckthorn, referring to the short hairs on the lower surface of its leaves and young twigs. The branches bear short thorns.

The scientific name of this tree is *Bumelia lanuginosa*, a member of the Sapotaceae, a mostly tropical family of woody plants. Except for buckthorn bumelia, found in the lowlands of southeastern Missouri, the gum bumelia is the only representative of this family in Missouri. The northern limit of its range is a few miles north of the Arboretum and it extends south into Mexico. An evergreen tree of tropical America in this family, called the sapodilla, produces an edible fruit and its coagulated sap is chicle, from which chewing gum is made. Gum bumelia also exudes a thick, clear gum if its bark is injured.

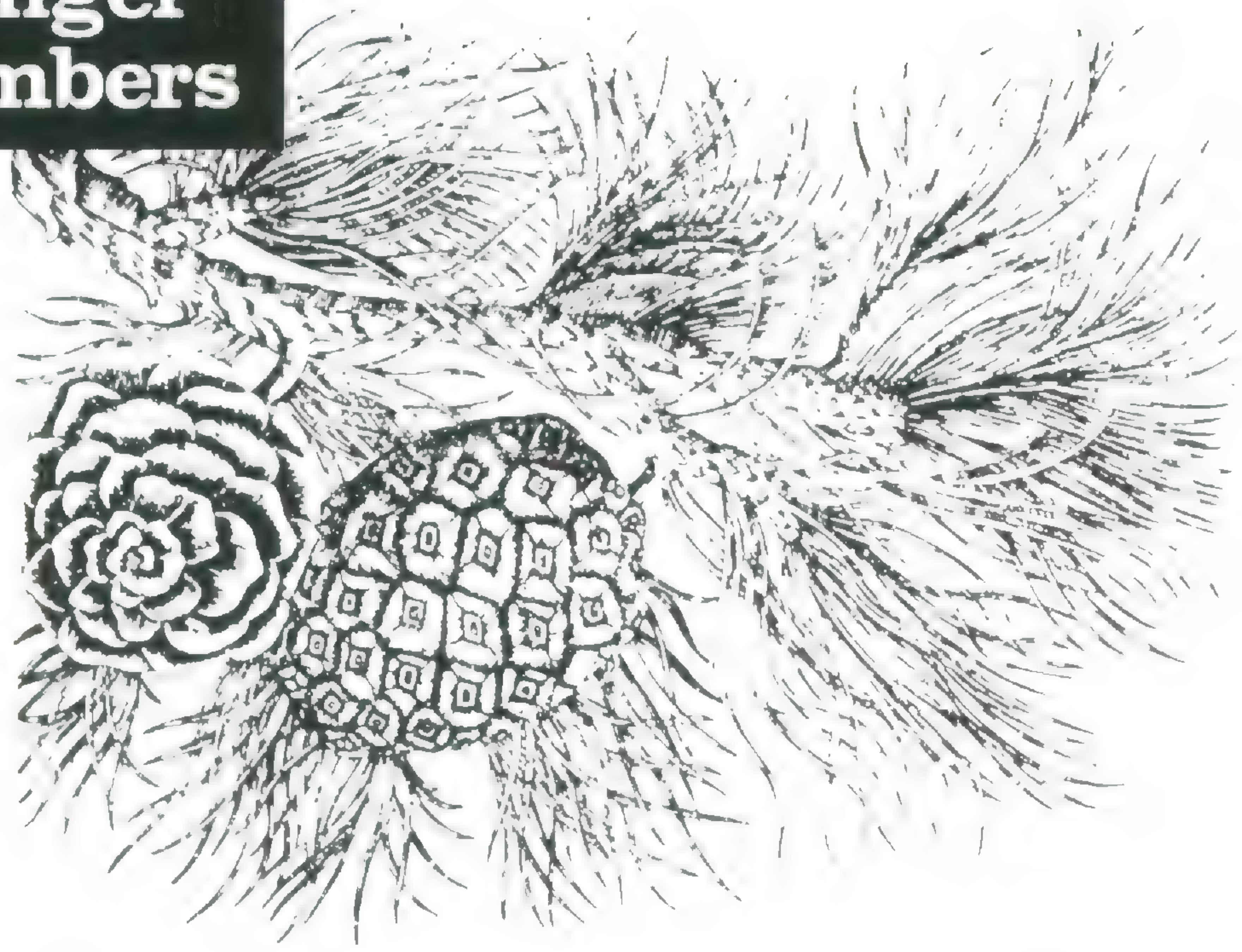


Gum bumelia is one of the last of the native trees in Missouri to come into bloom, waiting until June to produce flowers. The small white flowers borne in clusters in the leaf axils are fragrant and attract many bees. The bark on older trees has an easily recognized pattern of rectangular blocks 1 to 2 inches long with vertical and inverted v-shaped ridges.

At the Arboretum, the gum bumelia is is usually found on the dry soils of ridges and slopes between the Trail House and the Meramec River. A good specimen about 28 feet tall with a circumference of 30 inches is located 30 feet from the northwest corner of the Trail House.

An unusual habit of the gum bumelia is that its leaves remain green and fall from the tree irregularly throughout the winter, as though this immigrant from the tropics is uncertain what to do in more northern climes.

For Younger Members



Of Cones, Needles and Pines

Have you ever picked up a pine cone during an outdoor walk? Where did it come from? What do you know about it?

Pine cones come from pine trees, which belong to a large group of cone-bearing trees known as **conifers**. The conifers bear their seeds inside of cones. Other trees, such as apple or walnut, produce a fruit or seed pod that must be opened to get the seeds out. But the seeds of conifers rest between the scales of the cones and are not completely enclosed. Instead, the seeds simply fall out from between the scales. Because of this, it is often said that conifers have naked seeds. When the seeds are fully grown, they fall to the ground where they may grow into new trees. Many of the seeds are eaten by birds and other wildlife.

Pines are **evergreen** trees. This means that the trees stay green during the entire year. They do not shed their leaves all at once during the fall season.

The pine leaves are shaped like needles and grow in bundles of two to five needles each. The needles have a smaller surface area than an oak leaf or a maple leaf. This thin needle shape allows the pine to resist the cold, dry air of winter. Unlike the oaks or maples, which must shed their leaves before winter, the pine tree can keep its needles and stay green throughout the year.

The pine family includes many conifers such as hemlock, spruce and fir. Each bears cones of characteristic shape and size. Each has its own unique arrangement of needles. The next time you take a walk, see how many different kinds of pines you can discover. Collect some of their cones to study and to use in special projects.

—Ilene Follman,
Education Consultant

DID YOU KNOW…

- That the **sugar pine** has the largest known cones—12 to 15 inches long?
- That the **lodgepole pine** has been used by Indians for making poles for teepees?
- That the **pinyon pine** produces the delicious pinyon nuts in its cones?
- That the **bristlecone pine** is one of the world's oldest trees?
- That the bark of the **Jeffrey pine** smells like pineapple?

PROJECT:

Make A Cone Critter for Thanksgiving

You will need:
Crayons
Scissors
Colored construction paper
Glue
Pine cone with a round shape

What to do: Study your cones. Find the end that attached the cone to the tree. That's the bottom of the cone. The other end is the top of the cone.

Cut several paper feathers from the construction paper. Draw vein patterns on the feathers with crayon (See illustration.)

Lay the cone on its side so that it does not roll. Glue the feathers into the scales at the top of the cone to form a fan shaped tail.

Cut the neck and head from construction paper.

Cut out a red paper circle to use as a wattle, a piece of skin turkeys have under their necks.

Draw an eye on the head and glue the red wattle under the eye.

Glue the head to the bottom of the cone.

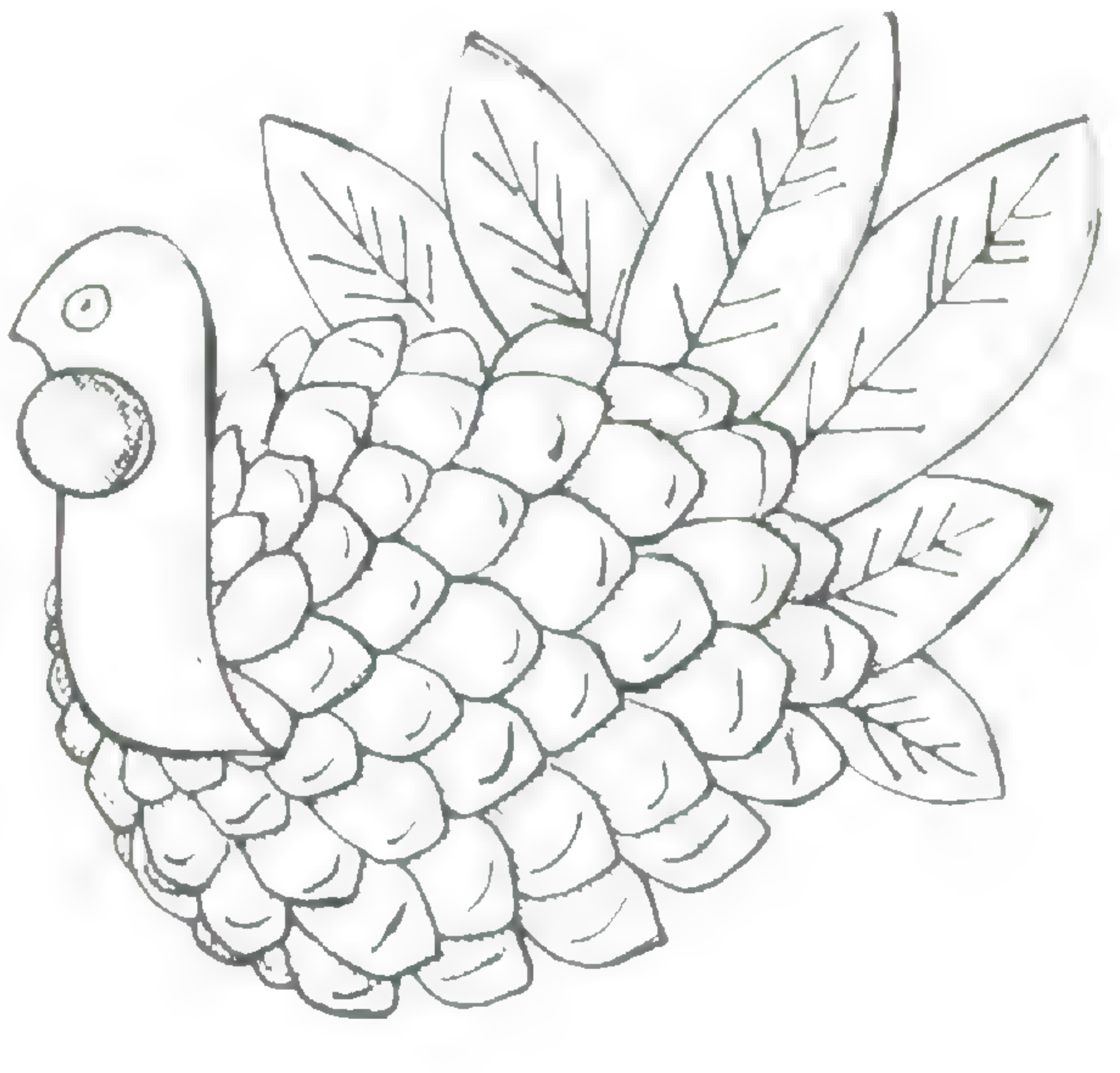


Illustration is from: *Snips & Snails & Walnut Whales: Nature Crafts for Children*, by Phyllis Fiarotta.

CORPORATE & FOUNDATION SUPPORT

Research Project Receives Grant

The Garden's extensive collection of the plant family Araceae and the accompanying research project entitled, "Investigation of New World Araceae," have received a grant of $33,224 from R. J. Reynolds Industries, Inc. of Winston-Salem, North Carolina. The money will be paid in two equal installments over the next two years.

The grant will enable Dr. Thomas B. Croat, who conducts research on the Araceae, to make two field trips to northwestern South America to collect additional species. The money will also be used to pay for a full-time greenhouse technician and to purchase equipment and supplies to better maintain the living collection, the largest collection of its kind in the world.

The Araceae or aroid family includes many of the most popular houseplants including Philodendron and Dieffenbachia. Because of its ornamental use and tolerance to adverse conditions, the family includes six of the top twelve plants in overall sales in North America.

Grant for Environmental Education

The Joyce Foundation has provided funds to the Garden for the second year to support environmental education programming. The award of $65,000 will help expand the ECO-ACT Environmental Leadership Program now in its fifth year. It will support development of Suitcase Science materials that teachers may borrow for use in classrooms, and funds will be used to prepare a newsletter to encourage parents to participate in science activities.

A series of day-long workshops for high school students and teachers will also be funded. The workshops will include Energy, Forest and Forest Destruction, and Hunger and The World Food Crisis.

Spink Gallery Treasures

These cardinals, now on display in the Spink Gallery on the upper level of the Ridgway Center, are the very first important songbird editions to be produced by Boehm Studios. They also represent the first time that foliage was prominently used in the design. The Spink Gallery is open daily during regular Garden hours.

Behind the Scenes

Carol Unger Elected

Carol Unger, director of personnel at the Garden, was recently elected President of the Personnel Association of Greater St. Louis, an organization of personnel professionals. She also is serving as secretary of the Human Resources Management Association of Greater St. Louis.

Tributes

JULY-AUGUST 1985

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Mrs. Mildred Berland
Mr. and Mrs. Lester Adelson

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Mr. and Mrs. S. Morton Isaac

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Ms. Liz Behle
Rock Hill Garden Club
Ms. Donna Wallace

Mrs. Rose Cohen
Mr. and Mrs. H. M. Talcoff

Mr. and Mrs. Harold Duchek
Bob and Marge Purk

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Darlene Haverkamp
Debbie Haverkamp

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Henry L. Henderson
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Ann Miles Henderson Tonks

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Harvy Hieken (Henderson and Hieken)

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Mrs. Leah Gross

Mr. and Mrs. Louis Loeb
Mr. and Mrs. Lester Adelson
Mrs. Ben H. Senturia

Mr. Clarence Mange
Mr. and Mrs. David Gutman

(continued on next page)

Tributes

(continued from page 17)

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From the Garden Gate Shop

Gift Ideas

Christmas will be special when you give our new **M.B.G. scarf**. The scarf of Japanese silk was designed specifically for the Garden by Echo Scarves and features a magnificent array of Missouri wildflowers in all their natural colors. The scarves will be available December 1, 1985 but orders are being accepted now.

The Henry Shaw Anniversary Rose by the Boehm Porcelain Studio is on display and available in the Gift Shop.

We have the spectacular **1986 M.B.G. Calendar** including a section featuring "Exploration in the Tropics."

The Shop also has a wonderful new **M.B.G. Holiday Card** showing the tropical splendor of the Climatron in celebration of its 25th anniversary.

1986 CALENDAR Order Form

Please send me _____ 1986 Missouri Botanical Garden Calendars at $9.95 each (plus $2.00 postage and handling).

Enclosed is my check for $________

Name ____________________

Address __________________

City/State ____________ Zip_____

Make checks payable to:
Missouri Botanical Garden
Garden Gate Shop
P.O. Box 299
St. Louis, MO 63166

Holiday Preview Sales

You are invited to celebrate the holidays with the Missouri Botanical Garden. The shop will feature two special sales. Your holiday shopping could be a holiday itself instead of a tedious chore when you shop in the serenity of the Garden.

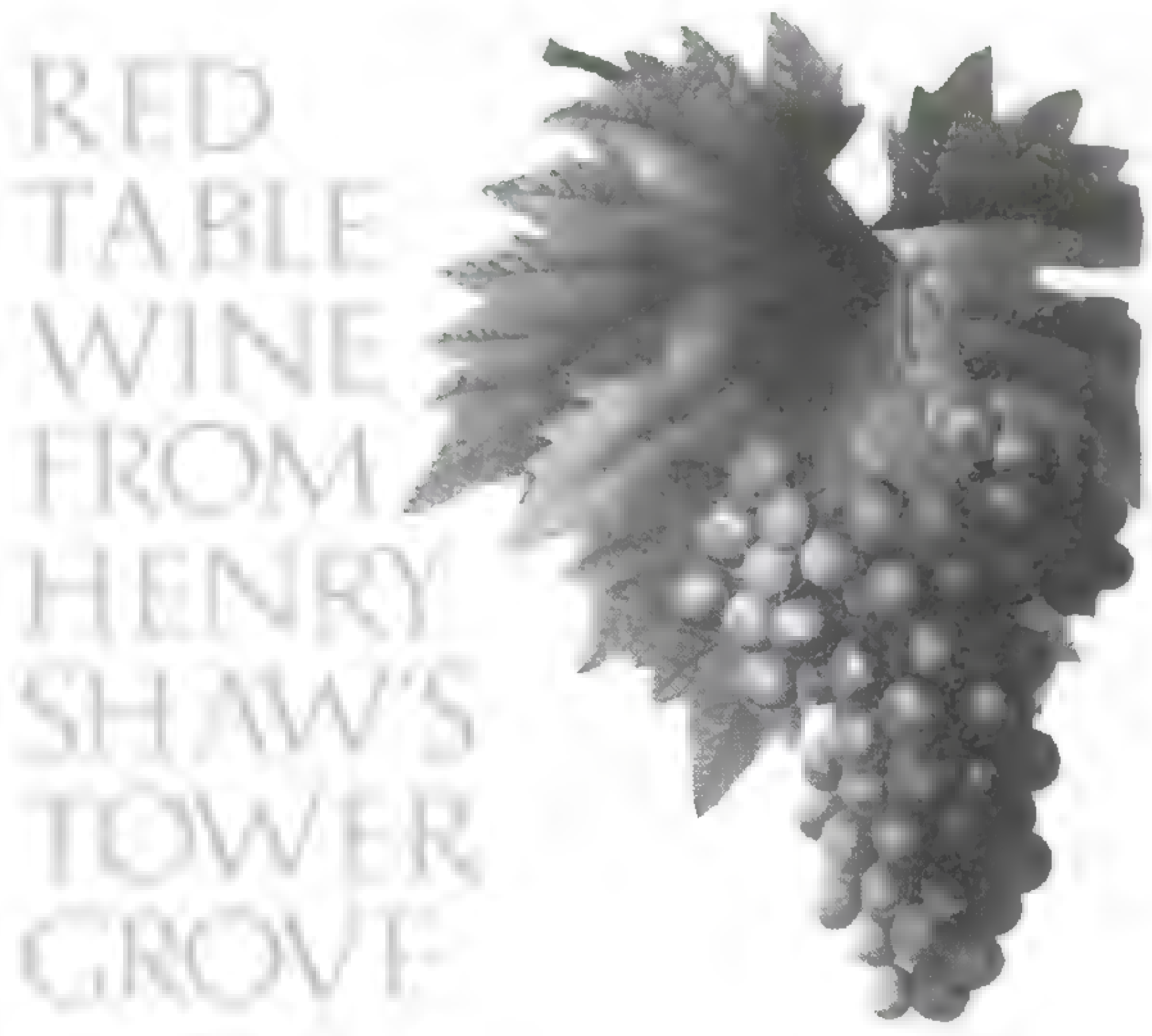
The annual Holiday Preview Sale in the Garden Gate Shop is scheduled for Wednesday and Thursday, November 6 and 7 from 9 a.m. to 8 p.m. As always, the shop will feature the finest in gifts, toys, gardening tools, plants and merchandise appropriate for the season.

December Plant Sale

Join us on December 6, 9 a.m. to 7:30 p.m., and December 7 and 8, 9 a.m. to 5 p.m. for a special sale of holiday plants and gifts.

The excitement of Christmas can be found in a picturesque variety of holiday plants. We will feature spectacular Amaryllis bulbs, a fascinating collection of birdfeeders and an assortment of musical chimes and bells, plus unique sundials and tools for the finest gardens.

As in the past, Members will receive a 20% discount on all items.



Gift Baskets

Through the Gardenview Restaurant, gift baskets will be available this holiday season. The baskets will feature our private label table wines from Henry Shaw's Tower Grove. Pictured is the wine label which was designed by Chip Reay of HOK, Inc.

There will be two basket selections available:

A: One bottle each of red and white wine, selection of fresh fruit, imported cheeses, salami, crackers and an Amaryllis bulb. $45.00

B: One bottle of either red or white wine, selection of fresh fruit, salami, imported cheeses, crackers and an Amaryllis bulb. $37.50

Baskets can be made without wine or with substitutions for the wine.

Orders of ten or more can be customized to your specifications.

For more information, call 577-5119.

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BULLETIN

VOLUME LXXIV, NUMBER 1 JANUARY-FEBRUARY 1986

Camellias Bloom in the Linnean House

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On the Cover: The oldest continuously operating greenhouse in the United States, the Linnean House, is in full bloom with camellias in January and February.

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The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $35 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100

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Comment

Looking Back On 1985

As we begin a new year at the Missouri Botanical Garden it is a good time to look back on the previous year and evaluate our progress.

Nineteen eighty-five was yet another year of celebration. The Climatron observed its 25th anniversary in October. As the photos and story on the opposite page clearly show, several thousand people enjoyed the superb results of the Members' Board's efforts. Fundraising for renovation of this magnificent structure has extended well beyond our own membership and indicates a tremendously broad base of support throughout community.

Other projects around the Garden which began or were completed in 1985 include the addition of a new garden in front of the Museum Building, a new bulb garden, and the azalea-rhododendron garden. Also, work is about to begin on the remodeling of the Lehmann Building for the Research Division.

These projects and dozens of other events which have taken place at the Garden during the past year are due entirely to the dedication, contributions and commitment of the Members, staff and citizens of the area. For that we can all be very proud.

Another item of note that I am very proud to report is the awarding of the Henry Shaw Medal in November to two outstanding citizens of the St. Louis area, Marlin and Carol Perkins.

The Henry Shaw Medal is the highest honor the Board of Trustees can bestow on an individual and has only been given 14 other times since its inception in 1893. The medal honors those who have made significant contributions to the Missouri Botanical Garden, botanical research, horticulture, conservation or the museum community.

Marlin and Carol Perkins have devoted their lives to conservation and the appreciation of nature. Mr. Perkins is no stranger to any of us as the host of "Wild Kingdom," the longest running nature program on television, and as former director of the St. Louis Zoo. He has probably done more than any single individual to bring the message of conservation of living species to the general public in this century. Mrs. Perkins has joined her husband in carrying this message to the citizens of the world. Together they were also the catalysts behind and founding members of the Wolf Sanctuary in south St. Louis County and have devoted a tremendous amount of energy in recent years to this worthy organization.

I am very proud of all we have accomplished in 1985 and look forward to an even more exciting time in the year ahead.

Peter H. Raven

The highlight of the annual Henry Shaw Associate's Dinner, held on November 21, was the presentation of the Henry Shaw Medal to Marlin and Carol Perkins (above) for their contributions to the conservation of living species.

Keynote speaker at the Henry Shaw Associate's Dinner was Missouri Governor John D. Ashcroft.

Climatron Celebration

What comes to mind when you envision balloons, clowns, festive face painters, hot dogs, chocolate bananas and lots and lots of cake? Why a birthday party, and quite a birthday party it was in celebration of the Climatron's 25 years at Missouri Botanical Garden. The celebration on October 13, was made official by a ceremony. Dr. Raven introduced many of the dignitaries who made the Climatron a reality in 1960.

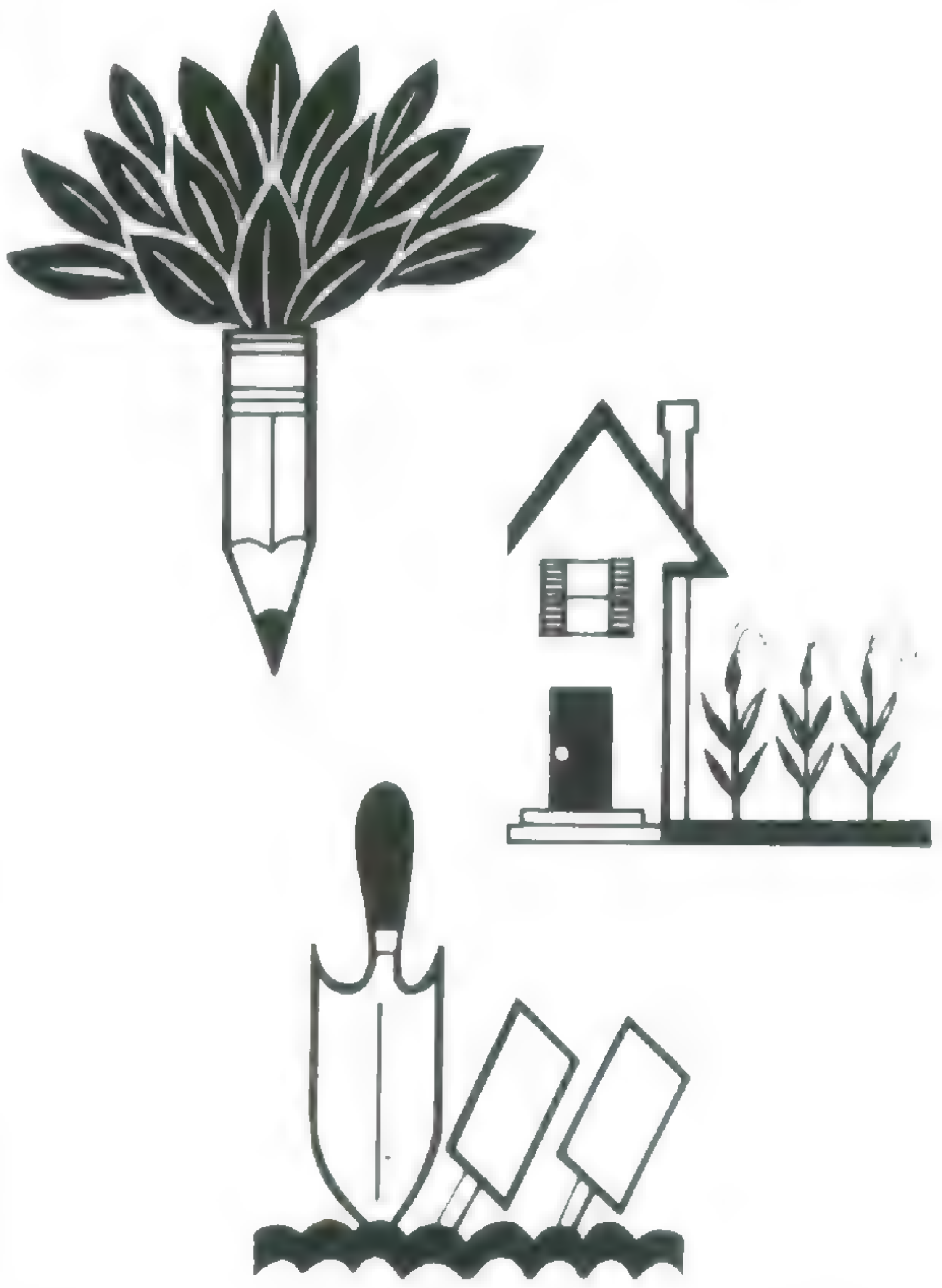
On hand were people such as Joe Murphy and Harry Richman, of Murphy and Mackey, who designed the Climatron; Paul Londe, the engineering specialist on the project; and Charles Rallo, of C. Rallo Construction Company, who built it. Rob Fornango won the Pane Game contest by guessing that there are 3,625 panes in the Climatron, taking the prize of a dome shaped tent. At the ceremony's end everyone was invited to partake of the plentiful birthday cake provided by the Master Retail Bakers Association of St. Louis.

The children who came to help the Climatron celebrate its birthday had plenty of activities from which to choose. There were Tarzan movies, live snakes of the tropics, and free plants for each and every one of them. The adults were entertained by a variety of activities as well. A slide show on the construction of the Climatron, a flower arranging class, an economical plant display, John Fuller's weather station and Frank Flotkin's talk on tropical fruits and vegetables kept everyone busy throughout the afternoon.

A continuing reminder of the Climatron's importance was unveiled at the Ridgway Center on October 13. A large two-piece display on the Climatron and the tropical rain forests that it duplicates was constructed especially for this event. This Climatron display will continue to tell the story of the Climatron and the Missouri Botanical Garden's effort to preserve tropical rain forests by touring libraries, companies and shopping malls throughout the metropolitan area in the coming months.

Despite the rain which came late in the afternoon, the Climatron Celebration was enjoyed by nearly 4,000 people. The entire event was planned by the Members' Board with special recognition being due to Charla Gray, Linda Gray and Kimmy Brauer for their many hours of work to make this festive day a reality.

Gardening by Design



Want to know how to design floral arrangements like those in the Reagan White House? Or learn which are the best annuals for use in St. Louis gardens? The new Wednesday lecture series, **Gardening by Design**, will give you those answers and a lot more fascinating information.

The series will kick-off on **January 15** with Ken Druse, editor of *Garden Design* magazine, and contributing editor to *House Beautiful*. Druse will discuss "Trends in American Gardening."

January 22, Matt Moynihan, owner of Moynihan and Associate Garden Designers of St. Louis will discuss "City Gardens: The Outside Story."

January 29, John Elsley, who designed the English Woodland Garden for the Missouri Botanical Garden, will talk on "Spanning The Seasons By Design." Elsley is the assistant vice president of George W. Park Seed Company, Wayside Gardens Division.

February 12, Bob Thomson will show us "The World of Vegetables and Flowers, As Seen Through The Eyes of *Victory Garden*." The host of this popular PBS show will share examples from around the world.

February 19, Steve Frowine will discuss "Annuals For a Colorful Landscape." Frowine is public relations manager for W. Atlee Burpee Seed Company. His former association with the Missouri Botanical Garden makes him especially knowledgeable about St. Louis gardening.

February 26, Dorothy Temple, floral consultant for Cybis porcelain, will talk about her four years as chief floral decorator for the Reagan White House, and demonstrate "Flower Designing In the White House Style."

Watch your mail for an opportunity to subscribe, or call 577-5125 for information. Tickets for this series will be sold by subscription through the mail, with all six lectures costing $20 for Garden Members and $25 for non-members. Each lecture will be given at 1 p.m. and again at 8 p.m. Subscriptions may be purchased for the afternoon series or the evening series only. Tickets cannot be mixed in one subscription.

Single tickets will only be available if the series is not sold out, and then only the day of the lecture at the door.

1986 Members' Travel Program

Two very exciting travel opportunities are available to members of the Missouri Botanical Garden.

Costa Rica, April 5-19

An excellent introduction to the tremendous diversity of habitats and wildlife of Costa Rica, this 15-day expedition includes a special look at the superb national parks and reserves of Costa Rica.

Visits will include Santa Rosa, the First National Park of Costa Rica; Palo Verde, the first wildlife refuge in Central America; Monteverde Cloud Forest, the world renowned mountain reserve, usually cloaked in mist and fog; and Manuel Antonio, the pristine gem of a park on the Pacific Coast, led by Dr. Thomas Croat of the Missouri Botanical Garden and zoologist Dave Whitacre of Betchart Expeditions, Incorporated.

The trip participants will explore the ecology of diverse tropical and mountain forests habitats from the Caribbean to the Pacific Coast.

English Garden Tour, May 8-24

A delightful trip to England will wind its way through the private and public gardens for which the English are so famous. Sissinghurst, the Great Dixter Garden and Stourhead Garden are just a few stops on the itinerary.

Accommodations along the way will be unparalleled, with arrangements including a three-night stay in a lovely private house situated in beautiful Kent, as well as a stopover at Chewton Glen near Exbury Garden. A visit with Rosemary Verey, author of the "The Englishman's Garden" and a tour of her Barnsley House Garden will highlight the trip.

Led by the Missouri Botanical Garden's Horticulture Department Chairperson, Alan Godlewski, the group will be joined by expert lecturers along the way as well. Judy Peil Travel, Inc. has planned this lovely English holiday and Judy will accompany the group every step of the way.

For information on the Costa Rica and England tours contact Dana Hines at 577-5108.

At right: The road north from the capital.

Below: A black and white Colobus monkey, common in the southern gallery forests.

Monkey Business in the Central African Republic

BY *J. Michael Fay*

The park is larger than Connecticut, most of the roads are impassable during the wet season, and it was the height of the poaching season.

Last summer I returned to the northern part of the Central African Republic to continue my botanical and primatological research in the Manovo-Gounda-St. Floris National Park, one of the wildest parts of the entire continent. I arrived in the park to find the French director leaving to go fund-raising and counting on me and the others in my group to run the place in his absence.

No problem. The park is only larger than the state of Connecticut, most of the roads are impassable during the wet season and it was the height of the poaching season. In fact, two days before our arrival, the president of the country, General Andre Kolingba, was fired upon by Sudanese horsemen when his helicopter landed in a camp with over 40 horses and camels. They seized 167 elephant tusks in the raid.

A few days later the director left us with 25 African workers, guides and guards, vehicles, guns and ammunition, and 100 kilometers away from the nearest village. I was faced once again with the reality of working in the ends of the African bush; you cannot strictly limit yourself to research, but must take part in conservation efforts if there is to be any hope of preserving this incredible wilderness.

Nonetheless, between antipoaching missions, playing doctor, providing food for the masses, maintaining the park infrastructure and helping with an aerial survey for the first three weeks, I made an attempt to maintain a research schedule.

The task before me was to survey, systematically, the gallery forest in the southern portion of the park for primates and to make botanical collections. These forests are extremely interesting because they represent the northernmost extension of this vegetation type in north-central Africa and are located in the Chadian Basin, which drains into the vast Saharan desert to the north. The maintenance of these forests is crucial to halting the alarmingly rapid advance of the desert.

I needed this information, especially population estimates and good photographs of the primates, because a prominent British mammalogist had categorically refused to believe that I had discovered four new primate species for the park the previous summer, extending their known geographic ranges by several hundred kilometers. One always needs proof and quanitification in the scientific world.

Also, I had first visited the forests the previous year and only in the dry season, so I needed to collect all of the plants that flower in the wet season. Most of the plant species that I have collected here

(continued on next page)

Flooded forest, habitat of *Cercopithecus pogonius grayi*.

Road to the southern gallery forests, covered in a blanket of grass.

Elephant speared by Sudanese horsemen.

represent large extensions of their previously known ranges.

I spent the next two months plodding through inundated forests with healthy populations of elephant, buffalo and, much to my chagrin, ticks. My wife, Andrea, became very adept at removing these horrid little beasts from absolutely every part of my body.

Near the end of the season, I had completed the majority of the census, discovered an additional species of monkey, and collected several hundred plants. Only one last, and very essential, segment of the forest remained unsurveyed. It lay 18 kilometers beyond the end of the, by now, completely grass-covered road. The tsetse flies were also fast reaching their yearly population peak making walking quite unbearable, and the probability of encountering poachers added a very real danger.

About ten days before my planned departure from the park the decision was made—I just had to go. The Africans thought that I had finally lost my mind, and maybe I had. Only my trusty guide and companion, Etienne Ndourou, would accompany me. Ndourou is one of the best. He took three shotgun blasts from a poacher the previous season and still managed to save the park director's life. He was just the man to have on an expedition of this kind.

Andrea dropped us off at the end of the road the morning of the 7th of August with a rendezvous for the afternoon of the 10th. We packed lightly because we had to travel through three-meter-high grass the whole way and one never knows what surprises lie just beyond the next blade. I set my compass for 190 degrees and calculated our E.T.A. at about 1:30 p.m.

At 10:00 a.m. we reached the first creek crossing, about eight kilometers from the road. We were right on schedule and extremely happy to see this creek, verifying that we were right on course. Continuing across the savannah we came across a large elephant trail, forming a virtual corridor through the sea of grass, which seemed to be heading only about ten degrees out of our way. Elephants are capable of maintaining a compass bearing with unerring accuracy over extremely long distances, so we followed it in hopes that it would lead to our destination.

After gingerly detouring around a herd of elephants on the trail, at 1:00 p.m., we came to the confluence of two creeks and, to my amazement, I knew exactly where we were. The forest in this spot is exquisite, with enormous mahogany, kapok and incense trees (*Canarium schweinfurthii*) and a flooded *Raphia* palm swamp, truly unique for an area only 120 km from the edge of the desert.

As we set up camp, my companion was stone-faced. I thought that he was nervous about the prospect of ever getting back. He finally got up the courage to report that he had dropped his matches along the way, as well as his knife and snuff. I let him believe that we would have to live without fire for a few days but then, when I produced a Bic lighter, his smile just about split his face in two.

That afternoon I surveyed a few kilometers of the forest and recorded lots of monkeys in the transects, but I was primarily after photos of a rare subspecies that occurs only in this part of the forest, *Cercopithecus pogonias grayi*, a guenon usually restricted to lowland forest.

In the evening we were serenaded by the loud croaks, roars, wails, and whistles of various monkeys, lions, hyenas and birds. I didn't get much sleep that night for I discovered that my sleeping bag was on top of a large root, and we had a visit from a lone elephant who thought our campsite trees needed a bit of pruning. Just to clinch a sleepless night, we spent about two hours trying to divert a 3:00 a.m. driver ant attack.

For the next two days I collected some excellent plant specimens and tried to get pictures of my monkeys, with little or no success. The last morning I was a bit frantic. We had accomplished an unthinkable journey and I was to return empty-handed! At about 10:00 a.m. I spotted a large, mixed troop of guenons and knew that this was my last chance. After a few minutes some *C. pogonius* came into view and my knees started to quiver. I stood for over an hour coaxing the little guys in. Non-human primates love to observe human primates, a blessing when you're trying to photograph them, but extremely vexing when trying to observe them. Finally one got within range and I took my long awaited photos. I had the proof I needed.

We packed our bags and returned along the elephant highway, back to the road where Andrea would be waiting. About two hours past the rendezvous time she showed up on foot—they were stuck in a gully several kilometers down the road. Such is life in the African bush.

A week later I was back in St. Louis in my tiny cubicle in the Lehmann Building dreaming about my next voyage to that wonderful continent. ▼

THE CENTRAL AFRICAN REPUBLIC: An Overview

The Central African Republic is located in the geographical center of Africa. About the size of Texas, it has a population smaller than that of St. Louis. The entire eastern half of the country is devoid of human habitation, due largely to the depredations of the slave trade, still legal up until 1913 and illegally practiced long after that.

Most people here have never heard of the country, except perhaps for some vague recollection of the self-proclaimed emperor, Jean Bedel Bokassa, who ruled the country for thirteen years and was overthrown by the French in 1978 after he reportedly beat and killed school children with his ebony and ivory staff for refusing to buy uniforms from a clothing factory owned by his wife. Remnants of his empire are still to be found in the C.A.R., including Roman archways at the entrances to the capital, a gold-plated throne, and bush-palaces equipped with tarmac runways that can accommodate Boeing 747s; all of this in a country with few paved roads, and an average yearly income of a few hundred dollars.

Things have improved greatly since the "Bokassa days." The roads are passable, fuel is available in the major towns, and luxuries such as tea and coffee are found throughout the country. Diamonds, wood and, until recently, ivory are the biggest exports from the C.A.R., but on an international scale the production is minimal. The country relies heavily on foreign aid, especially that provided by France, which still has many troops in the C.A.R. and a large military base.

Beyond the poverty and inconvenience of working in some of the most isolated wilderness of the African continent, the C.A.R. is a naturalist's paradise. The southern fourth of the country is blanketed in a lowland forest teeming with wildlife, including elephants, bongo, buffalo, giant forest hogs, panthers, numerous species of primates, and hundreds of bird species, not to mention a few thousand plant species. This area is completely unexplored from a botanical and zoological point of view, and is where a long-term study of gorilla ecology will start next year, recently funded by the Leakey Foundation. This is also the northern extension of the range of the pygmies, who act as our guides when we work in the forest. The north of the country is covered by a vast savannah parkland containing the best large mammal populations left in west-central Africa. It is here that the Giant Eland, the largest of the antelope, is found in considerable numbers.

As elsewhere in Africa, however, this enormous wildlife resource is fast being exterminated. The borders with Chad and Sudan to the north are the major source of destruction. The Sudanese cross the borders in large camel and horse caravans of 50 to 60, killing everything in their paths, often several hundred kilometers into the interior of the C.A.R. The main object of these incursions is to slaughter elephants for ivory, but they also kill rhinos for the horn; hippos, crocodiles, leopards, and cheetah for the skins; giraffe for their tails; and antelope for the meat. A survey on which I assisted Iain Douglas-Hamilton this summer revealed that 67% of the elephant population has been wiped out in the past five years. Cattlemen cross the border from Chad and Sudan with their rinderpest-infested herds, and the disease has considerably reduced the eland, buffalo and warthog herds since 1983. Over 20,000 buffalo have been lost to rinderpest in the country in two years.

To the south the situation is not as serious, but as pygmies become adept at using firearms and hungry for western goods, they are making inroads into the elephant populations. As forests are cleared and more people move in, the vegetation has little chance to regenerate, quickly pushing many plants and animals to extinction.

The C.A.R. has reached a critical stage, and draconian measures must be taken immediately to preserve what is left and to rebuild it. They have made great progress in the past year. New management in the largest park in the north has done a great deal to alleviate the poaching problem. In the south a forest reserve proposal has been submitted to the government which has tentatively been accepted. The owner of the largest logging concession in the country has even been convinced to reserve certain areas as virgin forest. They hope to eventually create a national park in that region. With continued effort in the years to come, the C.A.R. should be able to help put its natural resource base on a sound footing for the future. ▼

J. MICHAEL FAY **(pictured at left) has spent four years in the Central African Republic and is a graduate student of Dr. Peter Raven and Dr. Robert Sussman at Washington University. His research was made possible through funding by World Wildlife Fund-International, African Wildlife Leadership Foundation, Manovo SA., and the Garden.**

Gardening In St. Louis

The Art of Bonsai

Bonsai is the name for the wind-blown, twisted plants which remained dwarfed throughout their lifetime growing on high cliffs, and rocky outcrops. These plants fascinated the Japanese for centuries (then cultivated by the Chinese) when they were brought into the home landscape.

The art that developed, bonsai (pronounced bone-sigh), literally means "tray planted" but is also the art of keeping a tree or shrub maintained at a fraction of its natural size. Until the 13th century, naturally small plants were collected by educated and cultured men in an almost spiritual ceremony from hillsides or roadways. They carefully nurtured these delicate trees for spiritual and physical satisfaction. When the demand outgrew supply, they began forcing the dwarfed appearance. Many horticulturists consider this the highest art form: it should not be undertaken lightly by the gardener.

As a gardener, the first thing to consider is plant health. Bonsai culture reduces root balls of one quart to one gallon containers into a container usually no deeper than 1 to 2 inches deep. Up to half of its roots are pruned off to fit the plant to the container. To counteract the transplant shock the top portion is also reduced.

As an artist, when reducing above ground plant material, only the "right" part should be removed. There are five basic styles in bonsai culture: formal upright, informal upright, cascade, semi-cascade, and clump or forest. Limbs, buds or trunks are removed or trained to create each style.

Most bonsai hobbyists decide on the form by first observing the way the plant is growing and style it after its natural shape, capitalizing on any unusual feature.

Often plants can be purchased inexpensively from a nursery which are unsuitable for the average home landscape but are excellent plants for bonsai. Many small maple seedlings, for example, grow unwanted in gardens or lawns and can be combined to form a forest bonsai.

Most any plant which grows in the United States can be grown as a bonsai, though some dedicated gardeners also raise tropicals. Some bonsai artists feel the plants must be grown outdoors year-round, submerging the pots in winter and mulching heavily. Others have a more lenient view. Many gardeners keep their miniatures inside year-round. Some hobbyists keep their plants outside during the summer and, after leaf drop on deciduous plants, bring them inside to admire the artistic beauty of the naked branches. Whatever the conditions, care should be adjusted to suit the plant's environment.

Since the bonsai are grown in very small pots with little soil to hold water and nutrients, the plants must be watered and fertilized often. In the summer plants may need to be watered daily to prevent wilting. If the soil is properly drained, the plant will never be overwatered. However, plants will die quickly if allowed to dry out.

TRAINING

People often wonder why purchasing bonsai can be so expensive. Many well-established bonsai are over 25 years old when sold, so you are paying for all the care and training it has received.

One- to five-year old plants are transplanted from the original container and trimmed down to fit inside the bonsai pot. The roots and top are pruned and then the plant is wired to produce the twisted look. Wires are examined every month or so to see that the plant is growing as desired and that the wire isn't cutting into the bark. Three to nine months are required to train a small pliable branch, while larger stems or trunks may take several years.

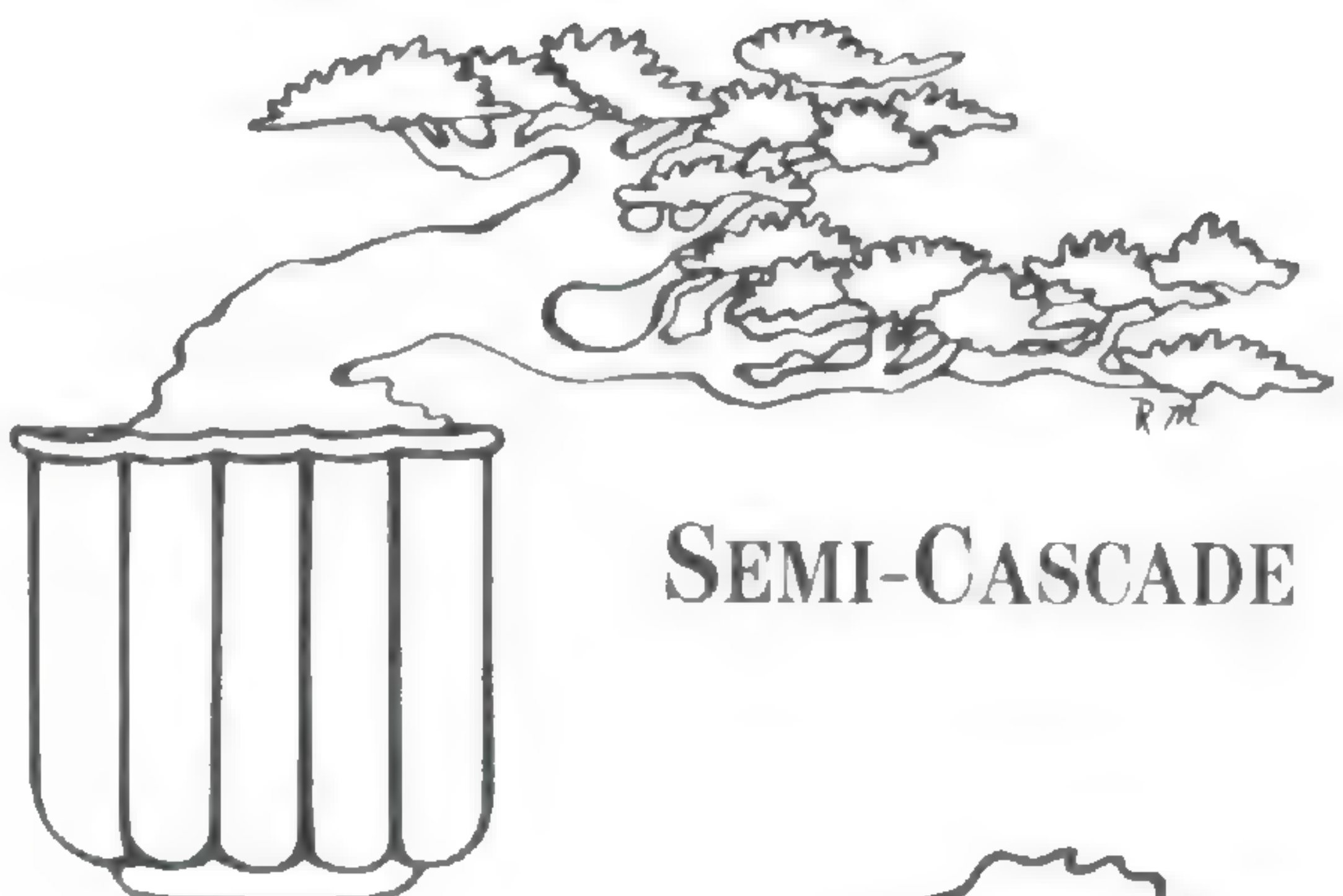
Raven Honored by Costa Rica

The first lady of Costa Rica, Doris Yankelwitz de Monge (center), is given a tour of the Garden's research facility by Dr. Peter Raven (left) and Dr. Marshall Crosby (right).

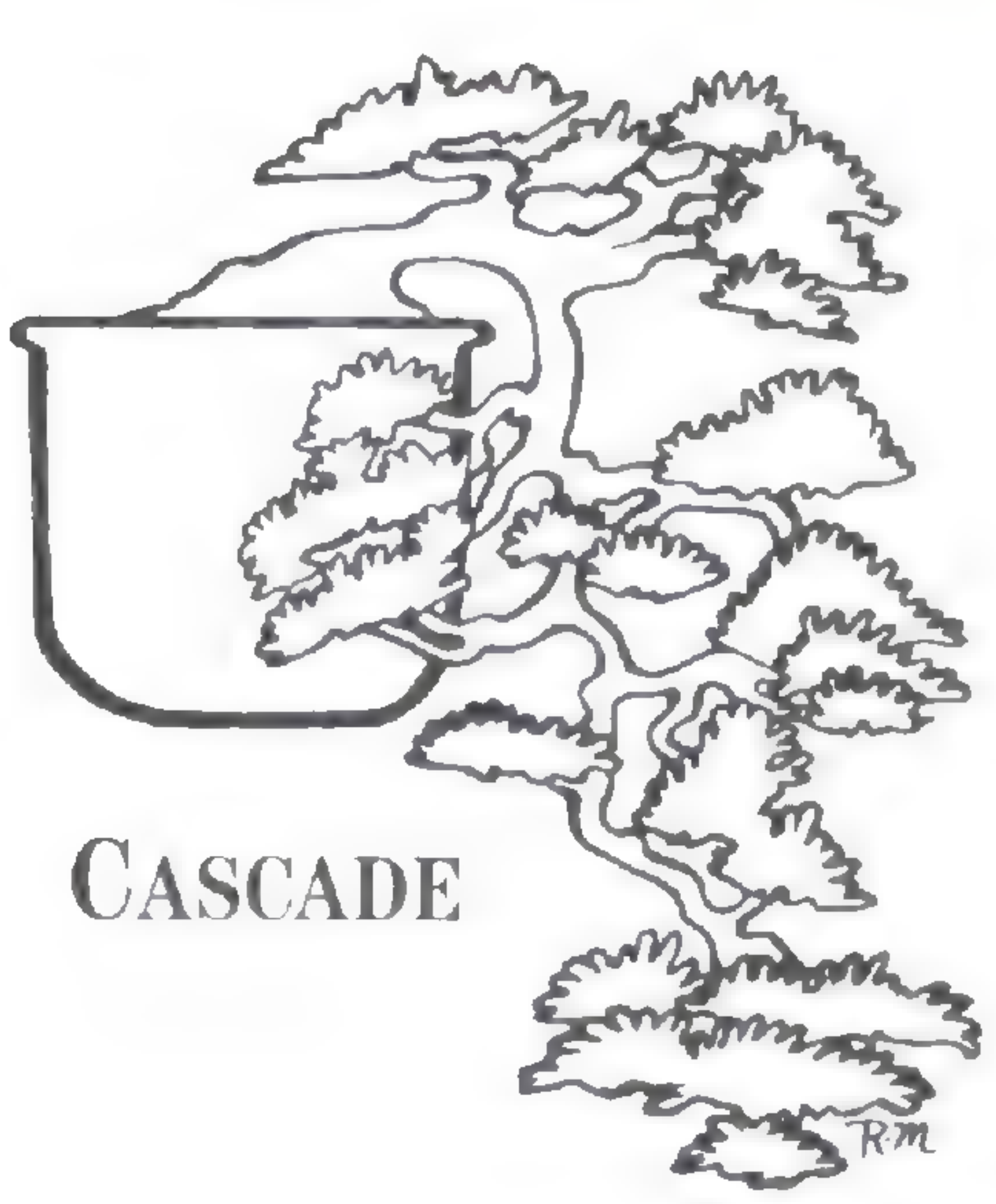
The first lady of Costa Rica, Doris Yankelwitz de Monge, recently visited the Missouri Botanical Garden to present Garden Director Dr. Peter H. Raven with a plaque of appreciation.

Dr. Raven was recognized for his role in securing funding to allow the acquisition of the 1,800 acre Zona Protectora between Parque Nacional Braulio Carrillo and Finca La Selva in Costa Rica, and for his continued involvement in preserving endangered tropical areas. Dr. Raven is currently the President of the Organization of Tropical Studies.

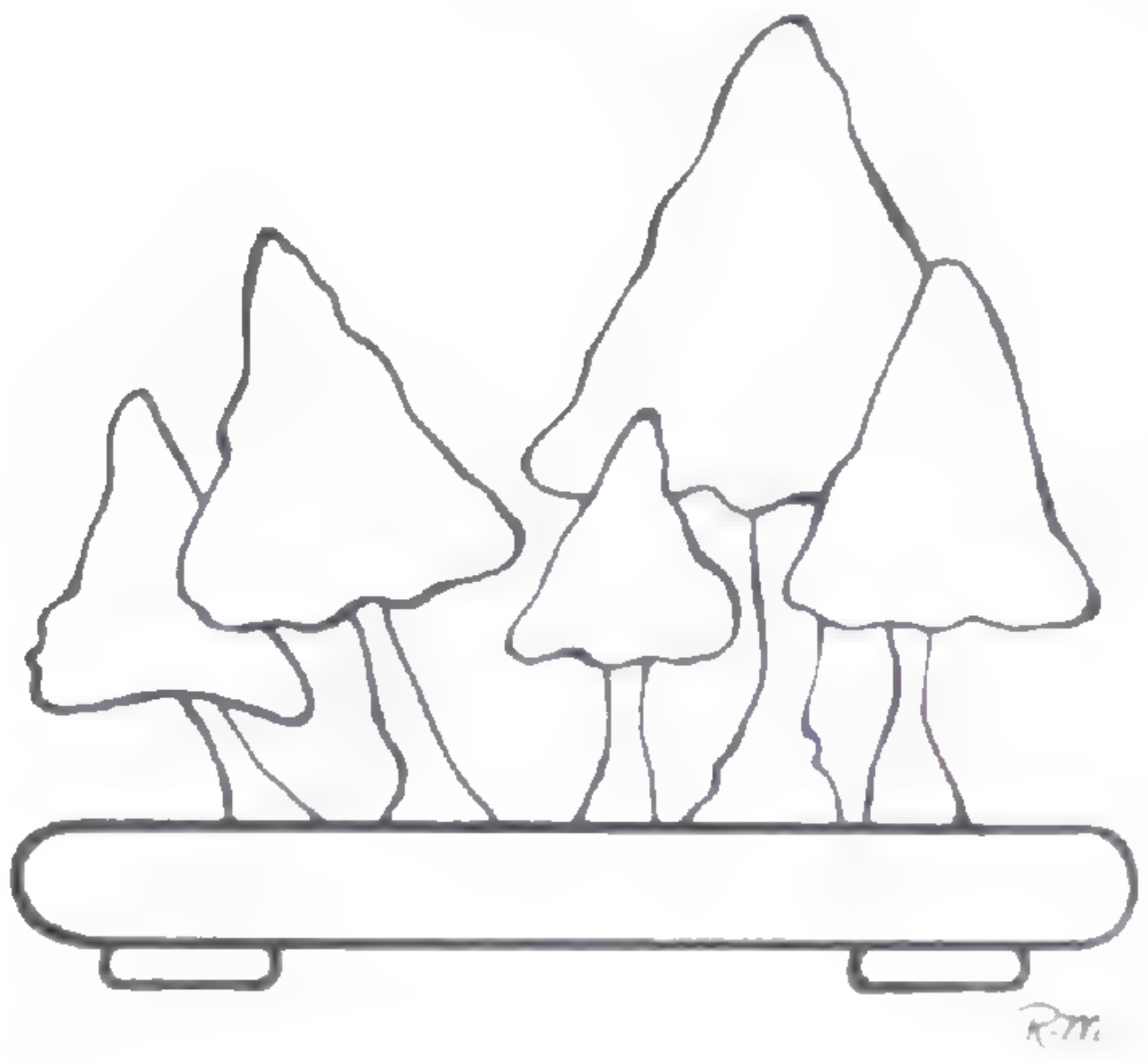
Costa Rica is a country rich in tropical vegetation and wildlife. It also leads Central America in preserving the natural beauty and ecological diversity of its environment by maintaining a large system of national parks, biological preserves and national monuments.



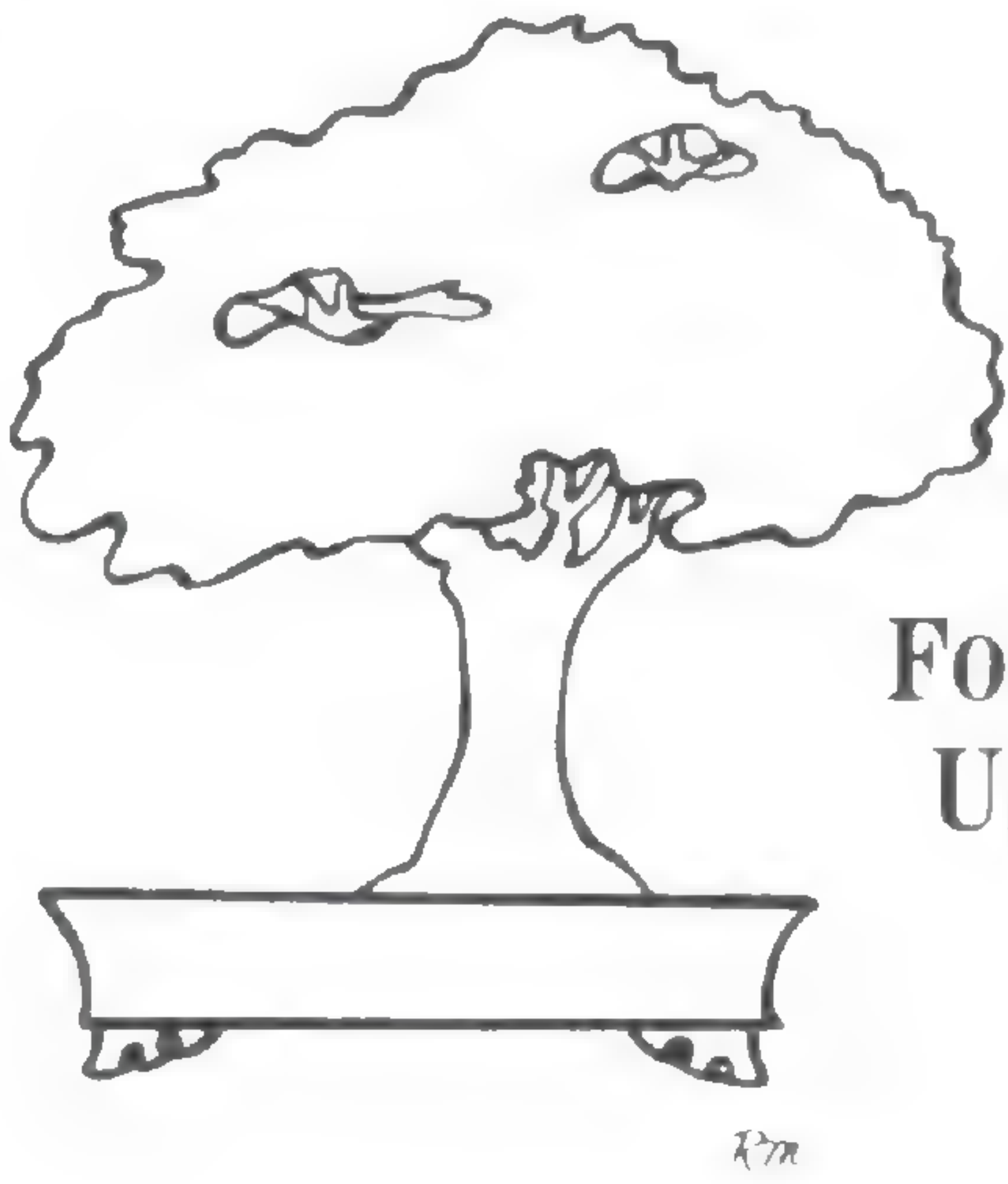
SEMI-CASCADE



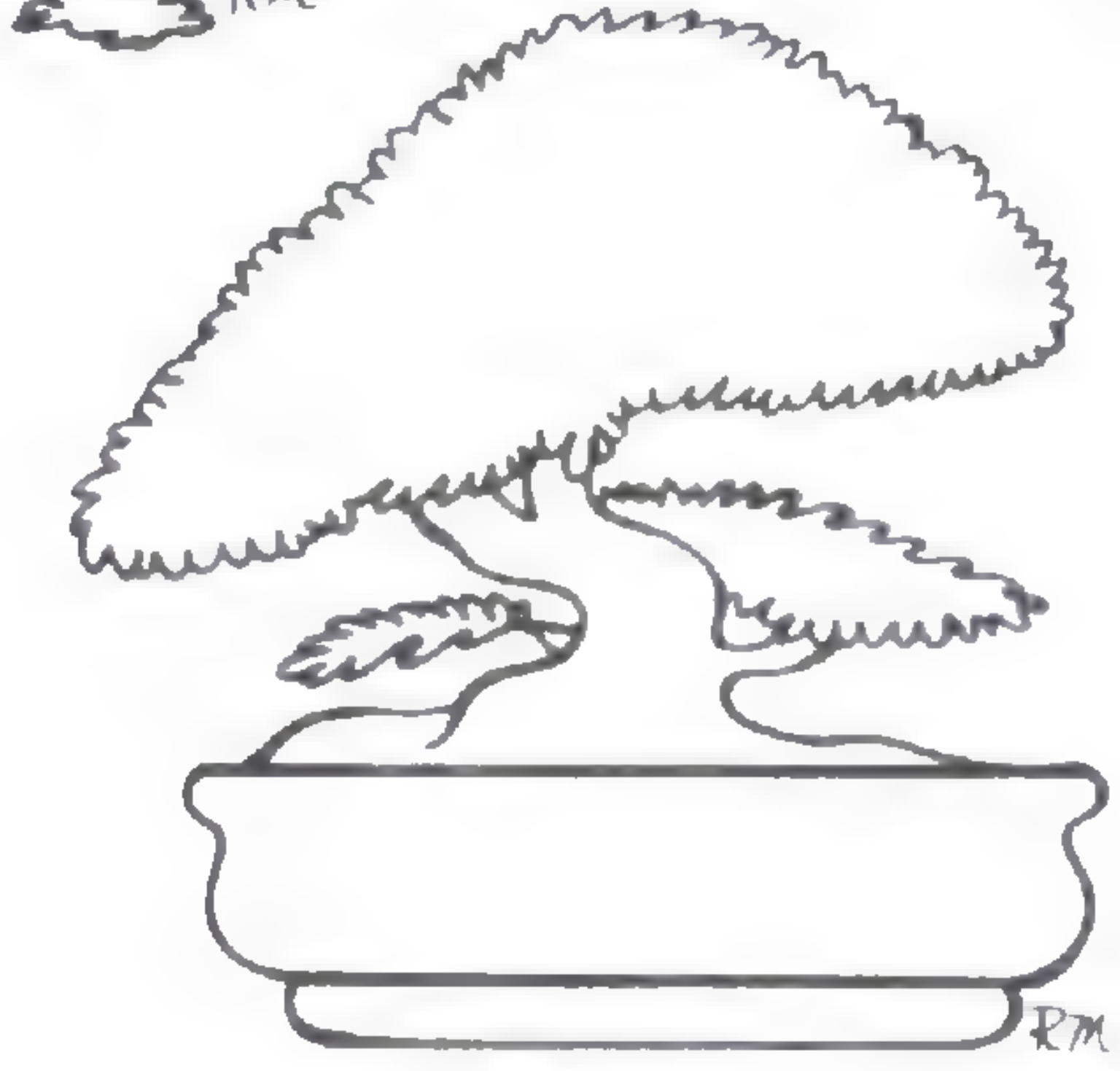
CASCADE



CLUMP OR FOREST



FORMAL UPRIGHT



INFORMAL UPRIGHT

Periodically the dormant plant must be unpotted, root-pruned and repotted to maintain size and plant character. Throughout the growing season new growth and old flowers are pruned off to keep it healthy and growing properly. Watering and training require much work for one small plant.

Just as bonsai culture is in its infancy in America and will take on the characteristics of the interest here, a new bonsai will take on the character of a new garden. For the dedicated gardener, this is a perfect outlet for horticultural artistry and knowledge.

SELECTED CANDIDATES FOR BONSAI

Azalea	*Rhododendron* sp.
Beech	*Fagus grandifolia*
Canadian hemlock	*Tsuga canadensis*
Chinese elm	*Ulmus parvifolia*
Cotoneaster	*Cotoneaster horizontalis*
Crabapple	*Malus* sp.
Common juniper	*Juniperus communis*
Flowering quince	*Chaenomeles* sp.
Holly	*Ilex* sp.
Japanese maple	*Acer palmatum*
Mountain laurel	*Kalmia latifolia*
Pines	*Pinus* sp.
Pyracantha	*Pyracantha angustifolia*
Rhododendron	*Rhododendron* sp.
Zelkova	*Zelkova serrata*

More information is available from The American Bonsai Society, Inc., Executive Office, P.O. Box 358, Keene, NH 03431. The Brooklyn Botanic Garden also has two excellent publications on Bonsai culture. They are both available at the Garden Gate Shop.

—BobbiJo Jarvis

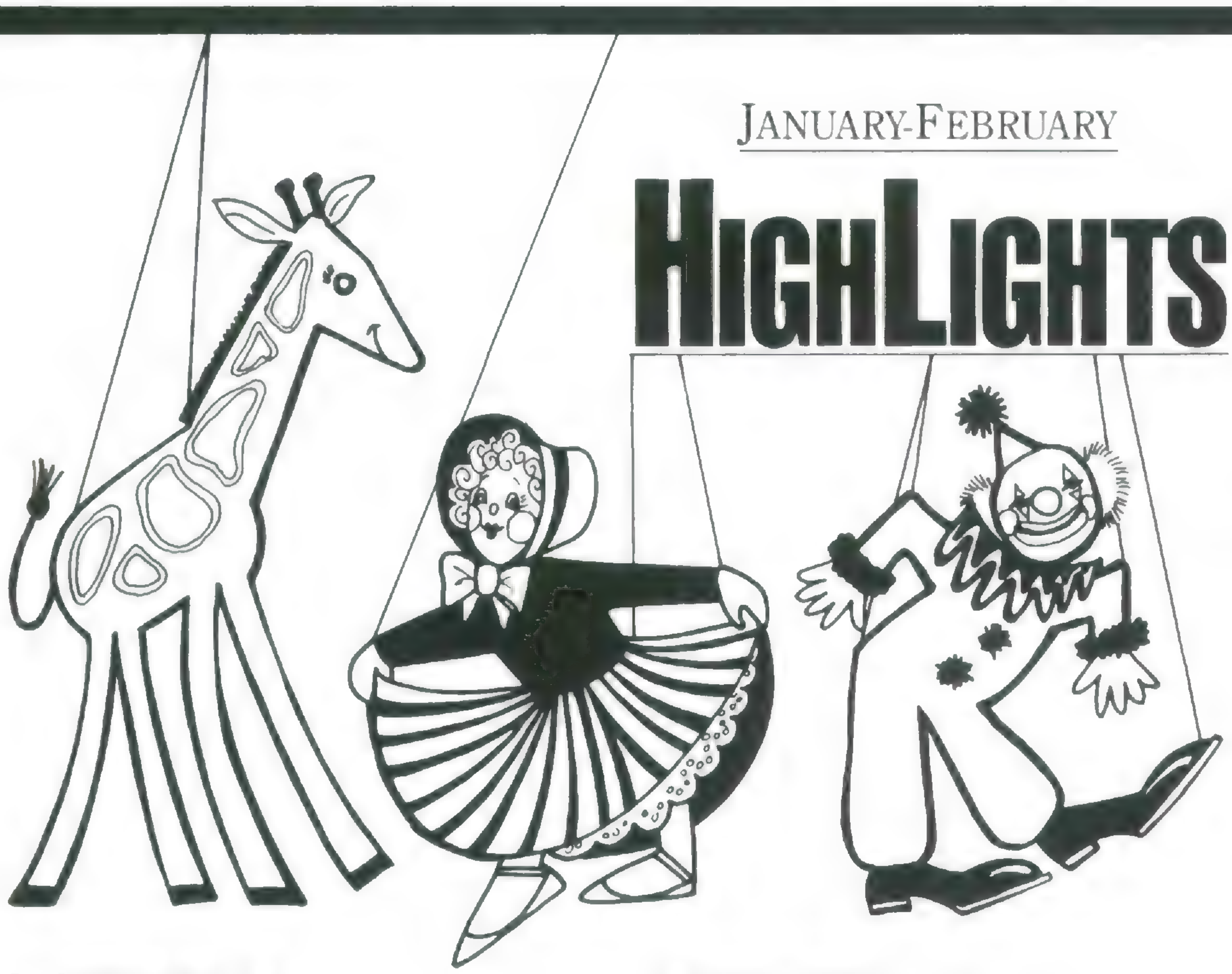
New and Notable

Pictured at left: The latest addition to the Japanese Garden is this lovely stone basin located near the Plum Viewing Arbor. The basin is a gift of James I. and Alice W. Hayashi and John E. and Robert J. Hayashi in memory of Joan Kay Hayashi.

Pictured at right: Twin specimens of *Buxus sempervirens* 'Henry Shaw' flank the south gate of the Herb Garden behind Tower Grove House. This Balkan boxwood was developed at Shaw Arboretum by members of the Boxwood Society of the Midwest and Dr. Edgar Anderson in 1969 and moved to its present location in 1973. It has lustrous, dark green leaves and is five feet high and four feet wide. Its casual elegance and deep color make it a fine choice to complement any herb garden.

JANUARY-FEBRUARY

HIGHLIGHTS



JANUARY 24– FEBRUARY 23

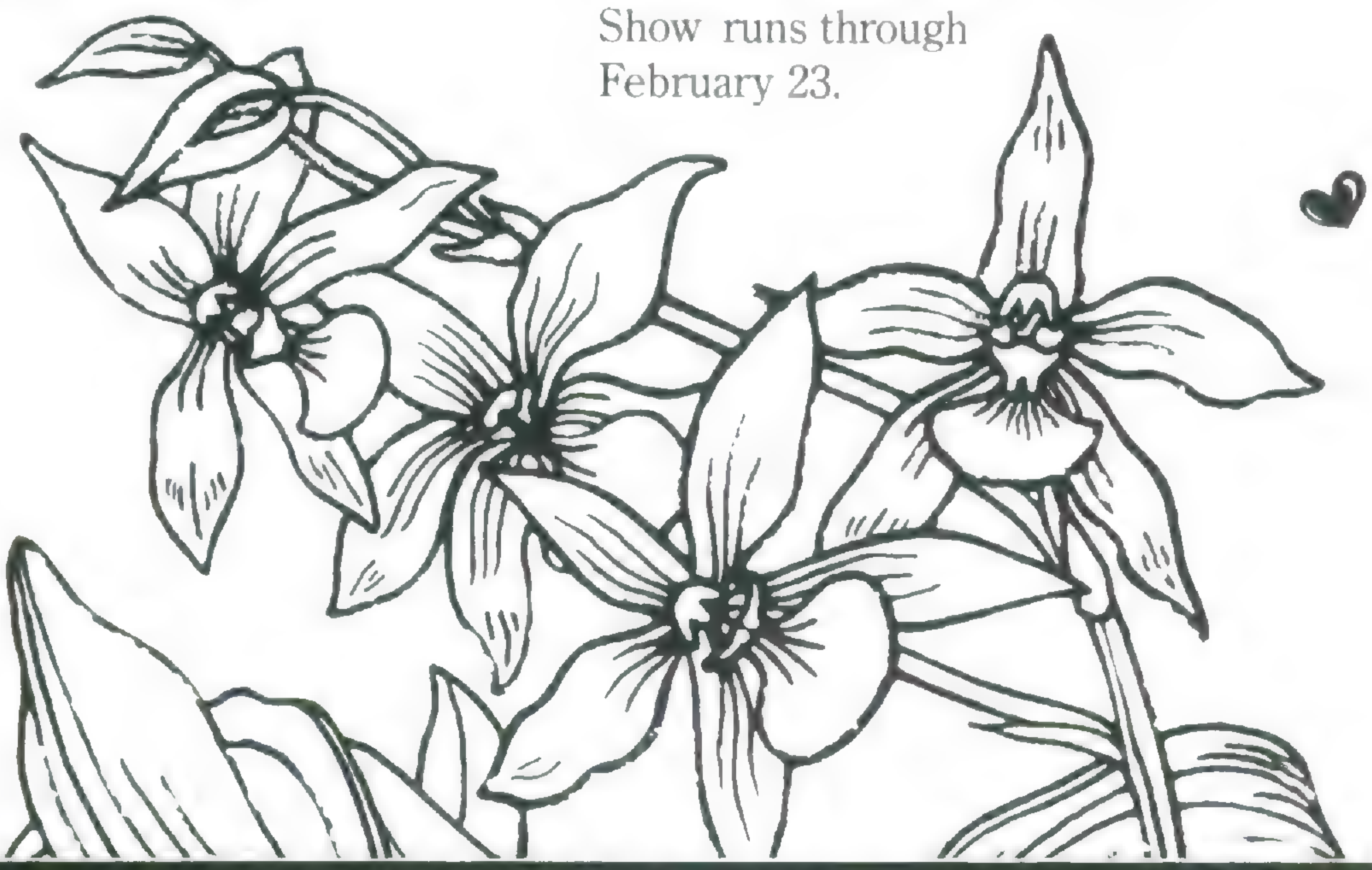
Margaret Mee Exhibit

9 a.m.-5 p.m., Monsanto Hall. "Flowers of the Amazon." In conjunction with the Orchid Show, a special exhibition of botanical watercolors by Margaret Mee will feature the orchids of Brazil.

JANUARY 24 / *Friday*

Members' Preview of Orchid Show

5:30 p.m.-7:30 p.m., Orthwein Floral Hall. Come and enjoy a pleasant evening among the orchids with your fellow Members. Food, drink and music will be available to add to your enjoyment. Show runs through February 23.



BLACK HISTORY MONTH

FEBRUARY 22 / *Saturday*

Understanding the Past for a Better Future

8 p.m., Shoenberg Auditorium. In honor of Black History Month, the Garden will present Dr. Mary Frances Berry, commissioner, U.S. Commission on Civil Rights. Currently a professor of history and law and a senior fellow in the Institute for the Study of Education Policy at Howard University, Dr. Berry studies and teaches history and law in a bit more realistic, and more sobering fashion than the traditional versions we probably were taught. She lends truth and perspective to lessons of the past and goals for the future that ultimately affect every American. Tickets will be $3.00 for Members, $4.00 for non-members. Tickets will be available at the Ridgway Center ticket counter, beginning Monday, February 10.

JANUARY 11

Saturday

Puppets Galore

9 a.m.-4 p.m., Ridgway Center. A full day of puppet workshops, theatre presentation and more surprises featuring members of the Puppet Guild of St. Louis. Highlights include performances by the Bob Kramer Marionettes and the Chameleon Puppet Theatre as well as classes where you can learn how to make a variety of inexpensive puppets with lots of personality. Reservations are required for the workshops and space is limited. Fee $3.00 per person per workshop. Call 577-5125 for details or pick up a complete schedule at the Ridgway Center ticket counter.

FEBRUARY 14

Friday

An Evening with your Valentine

7 p.m., Ridgway Center. Share this special evening at the Garden with your sweetheart. Beginning at 7 p.m. with a cash bar, sip cocktails as you stroll through the tropical orchid show in Orthwein Floral Hall and enjoy the music of strolling violins. At 8 p.m., enjoy dinner and dancing in Monsanto Hall and the Gardenview Restaurant. Each couple will receive a split of champagne and every lady will receive a beautiful red rose to complete the evening. $50 per couple. Reservations are required by calling 577-5125 beginning February 3.

JANUARY-FEBRUARY

DAY-BY-DAY

JANUARY

1 **New Years Day**
9 a.m.-5 p.m., Ridgway Center. Start the new year off with a visit to the Garden. Today is also your last chance to see the magnificent Holiday Flower Show and Tree Exhibit.

11 **Puppets Galore**
9 a.m.-4 p.m., Ridgway Center. A full day of puppet workshops, theater presentation and more surprises. *(See Highlights.)*

15 **Gardening by Design**
1 p.m. and 8 p.m., Shoenberg Auditorium. "Trends in American Gardening." *(See page 4 for ticket information.)*

16 **Costa Rica Travelogue**
1 p.m. and 8 p.m., Shoenberg Auditorium. The Garden is sponsoring a Members' Trip to Costa Rica, a world leader in the conservation of natural resources, April 5-19. Dr. Thomas Croat and Betchart Expeditions will preview that trip and the wonders of Costa Rica with a lecture and slides. For Members only.

16, 17 & 18 **January Clearance Sale**
9 a.m.-5 p.m., Garden Gate Shop. Save 20% on everything in stock to make room for exciting new spring merchandise. *(See page 13.)*

22 **Gardening by Design**
1 p.m. and 8 p.m., Shoenberg Auditorium. "City Gardens: The Outside Story." *(See page 4 for ticket information.)*

24 **Members' Preview of Orchid Show**
5:30 p.m.-7:30 p.m., Orthwein Floral Hall. *(See Highlights.)*

24 **Margaret Mee Exhibit**
Runs through February 23, 9 a.m.-5 p.m., Monsanto Hall. "Flowers of the Amazon." *(See Highlights.)*

26 **Lecture: Painting Orchids in the Jungle**
2 p.m., Shoenberg Auditorium. Come and hear artist Margaret Mee tell of her art and her adventures.

27 **Watercolor Techniques**
2 p.m., Ridgway Center. Margaret Mee will share the techniques and skills required to produce watercolors of the highest quality and form. This class is for experienced watercolorists only. Participants should bring their own materials. An informal tea with the artist will follow. Reservations required by calling 577-5125 beginning January 20. $50 per person.

29 **Gardening by Design**
1 p.m. and 8 p.m., Shoenberg Auditorium. "Spanning the Seasons by Design." *(See page 4 for ticket information.)*

FEBRUARY

5 **Orchid Show Lecture and Tour**
10:30 a.m. and 8 p.m., Shoenberg Auditorium. Alan Godlewski, chairman of the Horticulture Department, will talk about how the current flower show was produced and how best to view a floral display. Also members of local orchid societies will lead an informative tour of the current show. For Members only.

12 **Gardening by Design**
1 p.m. and 8 p.m., Shoenberg Auditorium. "The World of Vegetables and Flowers as Seen Through the Eyes of *Victory Garden*." *(See page 4 for ticket information.)*

14 **An Evening with your Valentine**
7 p.m., Ridgway Center. $50 per couple. Reservations required by calling 577-5125 beginning February 3. *(See Highlights.)*

18 **Natural Vegetable Gardening**
7 p.m.-9 p.m., Ridgway Center. First of five Tuesday sessions exploring concepts in the history of cultivation, with an emphasis on garden design. $30 for Members, $35 non-members. Call 577-5140 for details and availability.

19 **Gardening by Design**
1 p.m. and 8 p.m., Shoenberg Auditorium. "Annuals for a Colorful Landscape." *(See page 4 for ticket information.)*

20 **Lawn Care**
7 p.m.-9 p.m., Ridgway Center. First of three Thursday and one Saturday sessions which can help you develop a healthy, successful lawn. $20 Members, $25 non-members. Call 577-5140 for details and availability.

22 **Understanding the Past for a Better Future**
8 p.m., Shoenberg Auditorium. Dr. Mary Frances Berry. $3.00 for Members, $4.00 for non-members. *(See Highlights.)*

23 **Home Orchid Culture**
1 p.m.-3 p.m., Ridgway Center. Bring the beauty of the Orchid Show to your home. This course is designed for the novice as well as the expert. $6 Members, $8 non-members. Call 577-5140 for details and availability.

26 **Gardening by Design**
1 p.m. and 8 p.m., Shoenberg Auditorium. "Flower Designing in the White House Style." *(See page 4 for ticket information.)*

Note: Education courses listed in this calendar are being offered in the Spring Course brochure which was mailed to all Members recently and may be filled. Call 577-5140 for details.

The White Pine

Pine, spruce, hemlock, fir, juniper. These evergreens produce the color to cheer us in the drab winter landscape. They are found in abundance at Shaw Arboretum. As soon as a visitor passes through the massive stone pillars at the entrance, he or she is in one of the largest plantings of conifers in the midwest—The Pinetum. This area, covering 50 acres, was planted with many species of conifers from 1925 to 1950. Most were planted in groves of one species rather than as specimen trees. The groves are widely separated in a field of grass, wildflowers, and, in spring, masses of daffodils. This creates a pleasing vista which changes as one walks through the Pinetum.

The most majestic tree in the Pinetum is the white pine, *Pinus strobus* L. The natural range of white pine is in the Northeastern United States, north into Canada, west to northern Iowa and Minnesota. In the aboriginal American forest it was the most abundant species throughout much of this range. Almost all of New York outside of the Adirondacks and much of Pennsylvania was one vast white pine forest. The first settlers were astounded by trees 150 feet tall with 80 feet or more of the trunk remarkably straight and free of branches. In 1832, white pines 6 feet in diameter and 240 feet high were recorded in Maine. As to longevity, a tree in Pennsylvania, 155 feet tall and 3½ feet in diameter, was 351 years old when harvested.

The white pine became the most valuable timber tree in Northeastern America. Its beautiful, soft, lightweight wood had many uses, ranging from building and bridge construction to furniture, paneling, shingles, and matches. Along with fish and fur, white pine became the chief export of the colonies. Being strong in proportion to its weight and of such great length, it was especially suited for ship masts and spars. England tried many means to restrict the cutting of white pine trees and at one time had the best specimens marked with a blaze known as the King's Broad Arrow, to reserve them for masts for the Royal Navy. This so infuriated the colonists that, as recounted by Donald Culross Peattie in *A Natural History of Trees of Eastern and Central North America*, "the white pine was one of the chief economic and psychological factors in the gathering storm of the American Revolution, at least in New Hampshire and Maine."

The Pine Amphitheater

At the turn of this century, after 300 years of relentless exploitation, the great white pine forests were no more. This tragedy swayed public opinion in support of conservationists in time to save some of the great forests of the western states and gave impetus to the practice of timber conservation.

The white pine is easily recognized, even at a distance, with its horizontal branches in well separated tiers, arranged in whorls along the trunk. Younger branches are more ascending. The needles, in bundles of five, are slender, soft, three to five inches long, bluish green on the outside and whitened on the inner surface with three to five bands of stomata. (They mostly fall in the September of their second season.) White pine begin to reproduce in early June. The pollen cones produce copious quantities of yellow pollen. The seed cones are pink with purple-rimmed scales. The slender five to six inch long seed cones mature in two years, opening and releasing their seeds in September. When handled, the cones often leave a sticky pitch on the hands, reminding us that the white pine is the most resinous of all the pines.

The white pine is one of the most important pines in horticulture. Though too large for many situations, it can be pruned to restrict its size and shape. It makes an excellent screen or windbreak planting and a curving row will, in time, create a beautiful background for a large yard or garden. Although St. Louis is outside the natural range of the white pine, it is fast growing and long-lived in this area.

The white pine is the most successful pine planted at Shaw Arboretum. By 1949, 1,120 trees of this species were planted here, half of them as a border planting along Gray Summit Road, which is the northern boundary of the Arboretum, and the rest in groves scattered about the Arboretum. One grove enjoyed by many visitors is traversed by Pinetum Trail. This grove contains 31 trees 74 feet tall and is visible from the Visitor Center. The pines in this grove were planted an average of 14 feet apart, far enough apart to allow good growth but close enough to produce a dense shade which keeps the grove free of undergrowth.

Perhaps the loveliest grove is a large planting located 1/3 mile west of the Trail House along a service road. This grove is called the Pine Amphitheater because a permanent set of benches were constructed in a semi-circle under the pines. The 42 pines here have an average diameter of 18½ inches and 74 feet tall and are apparently still growing vigorously. To experience this grove to its fullest, come on a windy day in autumn after a long rain. The massive trunks are almost black from the moisture they have absorbed. The long horizontal branches are swaying to and fro in the wind. The newly fallen needles carpet the ground and produce a light brown display area for pieces of bark, pine cones, and small twigs with bright green needles snapped off by the wind. The wind plays soft melodies as it whistles through the needles. As you walk slowly through the grove, the thick carpet cushioning every step, you may have the feeling you are in a timeless holy place.

William A. Davit, Staff Naturalist

SHOENBERG AUDITORIUM VITAL TO GARDEN ACTIVITIES

The Shoenberg Auditorium in the Ridgway Center accommodates hundreds of events in a year's time. The well-equipped facility seats almost 400 in lecture style.

What do school children, bankers, musicians and the horticulture staff of the Missouri Botanical Garden have in common? These groups and scores of others, used the Shoenberg Auditorium during 1985.

The auditorium, a generous gift from the Shoenberg Foundation, provides the ideal location for performances, lectures, films, stage productions, concerts, meetings, workshops and more. When it is not reserved for Garden Members' activities or Garden sponsored events, classes or meetings, then it is available to the community as a resource center.

In 1985, the Shoenberg Auditorium was many things to many people. It was an educational center—used by the St. Louis Public Schools, the Garden's education department, a variety of elementary schools, and Washington Unviversity's department of biology. It was a place for music with performances sponsored by River Styx, Chamber Chorus and New Music Circle. It was a place for both young and old, providing space for the St. Louis Area Agency on Aging and the Children's Film Festival.

Since the Ridgway Center opened in 1982, the Shoenberg Auditorium has become a focal point of both Garden sponsored and community activities. It is a well-equipped facility that provides the flexibility required by an active institution.

According to Deborah Graham, events coordinator for the Garden, "The Shoenberg Auditorium is critical to our annual calendar. Without the auditorium," Graham said, "our calendar of events would be cut from a very full twelve months down to about three months. Even at three months, we would still be dependent upon the weather."

Dr. Peter H. Raven, director of the Garden, said, "The Shoenberg Auditorium has allowed us the freedom to plan and implement the kinds of programs we think are important for the community and for our Members. In a very short time, it has become an integral part of the Garden's programs."

From the Garden Gate Shop

Garden Gate Shop volunteer buyers (left to right): Betty Sims, Nancy Weith, Margaret Baldwin and Inez Bender proudly display their latest purchase, an exclusive silk scarf by Echo emblazoned with Missouri wildflowers. The scarf is available in either blue or green for $35 only at the Garden Gate Shop.

The Garden Gate Gift and Plant Shop will offer members 20% savings on everything in stock during the **January Clearance Sale**, from 9:00 a.m. to 5:00 p.m., Thursday, Friday and Saturday, January 16, 17 and 18. Be sure not to miss these exceptional savings.

Other Garden Gate Shop specials include: An **Orchid Sale** featured along with the Orchid Show January 24th to February 23rd. Twenty percent discount on all orchids in the Plant Shop plus 20% savings on all orchid books.

Valentine's Day Hearts and Flowers set the mood for this holiday. Choose from an array of romantic blooming plants in the Plant Shop or shop in the Gift Shop for featured heart gifts—heart mugs, heart earrings, heart-shaped boxes. Pick up one for your favorite person.

For that really special Valentine the Garden Gate Shop suggests the new Missouri Botanical Garden silk scarf with Missouri wildflowers.

Plan ahead for spring—select proven hybrids as well as unusual seeds for your flower, vegetable and herb gardens. Along with the seeds, we offer windowsill greenhouses, peat pots, and many other seed starting accessories.

For Younger Members

Say It With Flowers!

Did you know that almost every flower has a secret meaning? A long time ago, flowers and poems were the only gifts exchanged by friends and loved ones. Each bouquet of flowers was carefully arranged to communicate special messages, thoughts or feelings. For instance, if you received a gardenia, its secret meaning would be, "I love you in secret!" A rose meant, "I love you." And if two friends had quarreled, they might give each other lily-of-the-valley to say, "Let's make up!"

Roses, gardenias, and other flowers are still given as gifts today, especially on February 14. That date marks the celebration of St. Valentine's Day. It is a day set aside for people to send messages of love to special friends or "valentines." The messages are often communicated in poetic greeting cards and through gifts of flowers or candy. Many children and adults make their own valentine greeting cards. They write poems or special thoughts, and then they decorate the valentine cards with red hearts or flowers. The cards are often sent together with bouquets of flowers.

Below you will find a list of flowers and some of their secret meanings. You may want to select one or more of the flowers to give to someone special on Valentine's Day. Or, you may want to write a Valentine's Day message using some of the flower names. You can design a valentine greeting card. Cut out a square of white paper and glue it to a piece of red construction paper. Write your special Valentine's Day message on the card. Use the language of flowers to help you communicate your thoughts!

—Ilene Follman
Education Consultant

SYMBOLIC MEANING OF FLOWERS

Daisy: gentleness; innocence
Camellia: excellence; "I shall love you always."
Gardenia: secret love
Iris: faith; promise; wisdom
Lily-of-the-valley: return of happiness; "Let's make up."
Orchid: beauty; youth
Rose: charm, simplicity, "I love you."
Rosebud: beauty; youth
Violet: faithfulness
Four-leaved clover: "Be mine." "Think of me."
Pansy: thoughts; "I think of you."
Zinnia: thoughts of absent friends
Oak-leaved geranium: true friendship
Sweet basil: good wishes
Cactus: warmth; bravery
Chrysanthemum: cheerfulness
Forget-me-not: true love

ORCHIDS & CAMELLIAS

February is the month to visit Shaw's Garden with your favorite valentine. During that month, the camellias will be in bloom in the Linnean House; and the annual **Orchid Show** will feature a gorgeous display of many different orchid varieties. The Orchid Show will be located in Orthwein Floral Hall. Find the symbolic meanings of the camellias and the orchid in the list above.

VALENTINE PUZZLE

Solve the puzzle below to find the hidden message:

___	___	___	___	___	___	___	___	___ ,	___	___	___	___	___	___ !
1	12	4	5	13	6	2	13	5	17	5	15	2	13	5

V	I	O	L	E	T
1	2	3	4	5	6

C	H	R	Y	S	A	N	T	H	E	M	U	M
7	8	9	10	11	12	13	6	14	5	15	16	15

R	O	S	E	B	U	D
9	3	11	5	17	16	18

ANSWER: *Valentine, Be Mine!*

IN MEMORIAM:

Charlotte (Carla) Erna Liedtke Lange

The Missouri Botanical Garden lost a valuable resource when Carla Lange died of a rare lung disease on September 24, 1985 at her home in Kirkwood. Born April 1, 1918 in Berlin, Carla traveled extensively as a student studying various European languages in different countries. Besides her native German, she was fluent in English, French, Spanish, Portuguese, and Italian. In addition, she could read and write Russian.

During World War II, Carla was employed by the Cultural Department of the German Embassy. By the time the war had ended, she had studied diverse cultures in Germany, Romania, Serbia (now Yugoslavia), Bulgaria, and Portugal. After the war she went to Munich where she worked in various military government courts as an interpreter and reporter. It was there that she met and married Morton Lange, a lawyer from St. Louis, who was then working in the German courts as a U.S. judge.

In 1963, the Langes left Europe and settled permanently in St. Louis. In early 1964, Carla was hired as the Assistant Librarian at the Garden, a position she held until her retirement July 8, 1985, after which she continued to volunteer her services. In addition to her regular duties of working with exchanges, curating the rare book collection, and selecting new books and serials, Carla's most noticeable contribution to the community at large was in serving as a reference librarian. Her vast knowledge of the Garden's botanical collections as well as her ability to translate and locate the most obscure publications were talents that library users greatly appreciated and relied upon. In addition to these contributions, she translated over 250 German letters written to George Engelmann, wrote many articles for the *Bulletin* between 1968 and 1980, and worked closely with Frans Stafleu and Richard Cowan during frequent visits to the Garden researching their major botanical reference series, *Taxonomic Literature*. She also was active in the Council on Botanical and Horticultural Libraries (CBHL).

Carla Lange probably is remembered best for her devotion to the Library, where her knowledge of the collection enabled it to function as a rich source of information for hundreds of botanists worldwide. Her special ability to communicate in many languages, as well as her fierce independence in making the complex seem simple, made her contribution to the Garden one that will be hard to match. A co-worker aptly characterized her by saying that she was "a person not only with knowledge but with the dignity and grace characterizing the exceptional individual." Those who knew her well and worked with her can attest to this fact.

—Cheryl R. Bauer

MBG in the News

The latest issue of *The Cherry Diamond*, published by the Missouri Athletic Club, focused exclusively on the Missouri Botanical Garden. Patricia Rice is the author of the finely written articles and Bob Srenco took the superb photographs.

GARDEN'S TREES RECEIVE MUCH-NEEDED BOOST

The Garden has been awarded a matching grant of $25,000 by the Institute of Museum Services. These funds will be used in an extensive program aimed at conserving many of the larger and older trees in the Garden.

The money received from the grant, will be used to initiate a plan which includes pruning for safety and aesthetics, fertilization, injection for disease and insect control, and providing lightning protection. These measures are necessary to guarantee survival for the Garden's many unique and irreplaceable trees.

Dr. Raven Honored by International Botanists

Garden Director Peter Raven was recently named Honorary President of the Third National Congress of Botany in Peru. Dr. Raven was honored for his dedication to science and his efforts in organizing the Congress of Botany. This annual assembly brought together more than 350 botanists, dedicated to research and education.

Under Raven's guidance, the Missouri Botanical Garden has greatly expanded its research in the tropical regions of Latin America. It is hoped that such research, and programs like this one in Peru, will find solutions to the problem of preserving the deteriorating tropical forests of the world.

A Gift of Memories

It comes as no surprise that the beauty of the Missouri Botanical Garden attracts scores of young people with marriage on their minds, and the Garden has long been a popular place for weddings. But the Garden should be more than just a memory, so now couples that are married at the Garden are receiving a gift of Garden Membership. It's the best way we know to assure a first year full of great memories. For more information on weddings or private parties at the Garden, call Facility Management at 577-5125 during regular business hours.

Members' Days... A Grand Success

The 1985 Members' Days were like a pot of gold at the end of a rainbow. Events such as the Climatron Celebration, Henry Shaw's Birthday Party, Rose Evening, and the Purple Martin Evening and Bus Tour are just a sampling of the events during the past year that were fun, well executed, and best of all very well attended.

The Members' Board had a dream of planning events and activities for our membership on a monthly basis, to give people one more reason to love the Garden and to visit regularly. Jean Zinsmeyer and her hardworking crew of volunteers plan each and every Members' Day with care. Invitations are sent, special Members' Day lapel stickers are distributed and extra membership benefits such as free tram rides, restaurant and plant shop discounts and special guest privileges are added on those days to make the Members' Days the rousing success that they have become.

More than 6,000 members attended this wide range of activity last year and you can see by the list of Members' Days planned for 1986, this year should be even better! Our hats are off to Jean, her loyal volunteers from the Members' Board, the Guides, the Public Relations staff, and especially you, the members, who are making it all such a success!

A Look Ahead

The New Year is looking like an exciting one for the membership of the Missouri Botanical Garden. An expanded travel program will open up opportunities never before offered to our members. Another first will be a tour of private gardens of St. Louis. We don't want to scare you, but a "Members Only" event for the whole family will be planned for Halloween. A whole host of members' days and new membership gift ideas are planned for the year.

1986 Members' Days

January 16	*Costa Rican Travelogue*
February 5	*Orchid Show Lecture and Tour*
March 15	*Rose Lecture*
April 5	*Arbor Day Celebration*
May 17	*Dawn Photo Session*
May 29	*Purple Martin Evening*
June 6	*Rose Evening*
July 24	*Henry Shaw Birthday Dinner*
August 12 & 19	*Members' Evening Tour of the Garden*
September 21	*Camera Day at the Garden*
October 9 & 11	*Lecture and Tour of Missouri's Wine Country*
November 16	*Lecture and House Plant Clinic*
December 6	*Family Day at the Christmas Tree Display*
December 11	*Members' Dinner and Christmas Concert*

Gifts for Tower Grove House

Like every elegant country home that is used a great deal for entertaining, Tower Grove House occasionally needs replacement items or refurbishment to continue its grand tradition. Recently, Mrs. Ellis H. Hamel gave two linen damask tablecloths, twelve linen damask napkins and many lovely doilies. Mrs. E. R. Culver, Jr. presented the Auxiliary with a crochet hook and an awl, both with beautifully decorated silver handles. According to Tower Grove House manager, Mrs. Norma Silber, the house is in need of antique pillow shams since the current shams are wearing out. If you have items that might be of interest to Tower Grove House, call the house directly at 577-5150.

GIFT MEMBERSHIPS:

Introducing a New Gift Giving Opportunity

A gift of a membership in the Garden is a gift for all seasons and reasons.

- **Happy Birthday!**

Remember birthdays by sending a Membership in an MBG birthday packet. It will be a welcome surprise!

- **Happy Valentine's Day!**

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Plants To Remember

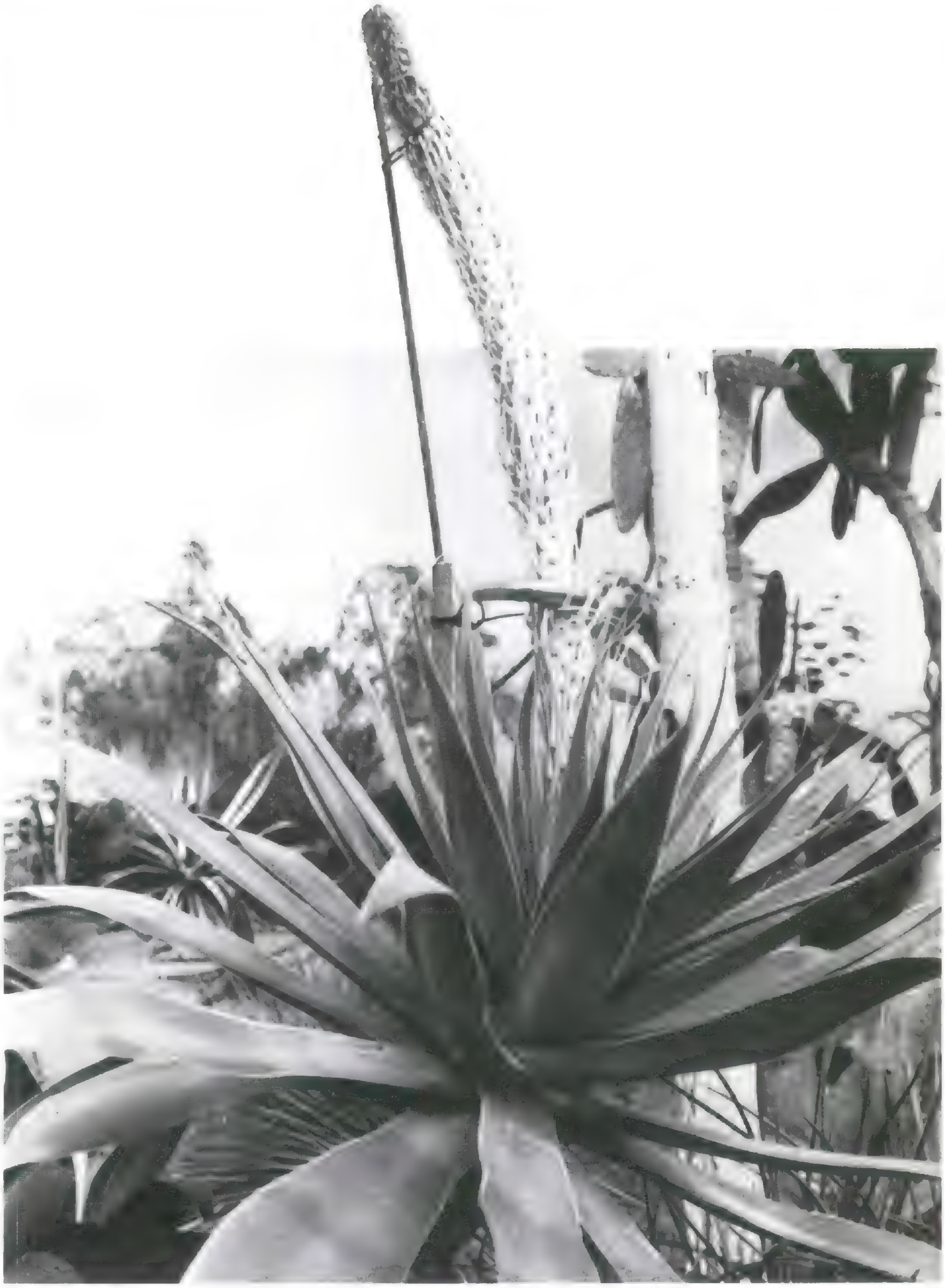
Agave attenuata

Agave attenuata, sometimes called a Century plant, is a fascinating succulent which can be found flowering in the Desert House. In Mexico, its native habitat, the plant may flower not in a century as its name implies but when it reaches maturity in 10-60 years. In our case, it has taken about 25 years for the plant to mature and will take several months to flower producing a fantastic stalk six feet long. Thousands of small greenish florets form on a showy inflorescence, producing seeds and even plantlets before the entire plant dies.

These plants can be grown in the home in a large tub-like container which provides good drainage. Propagation is from seed, plantlets, or by suckers which form in a cluster at the base of the maturing plant. They will survive after the original plant flowers and dies.

Our Agave produced a flower stalk in mid-October and can be seen in the Desert House until it is no longer in flower and the plant starts to die. Plan a special trip soon to see this rare occasion.

—BobbiJo Jarvis



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BULLETIN

VOLUME LXXIV, NUMBER 2 MARCH-APRIL 1986

Spring Flower Show Opens March 8

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Comment

Glorious Spring

In spring we are all anxious for the emerging signs of plant life. This year there is a great deal to watch for at the Garden.

Adjacent to the Gladney Rose Garden is our new bulb garden planted last fall. More than 2,000 bulbs, including species tulip, hyacinth, grape hyacinth, narcissus and crocus, will be in bloom in early and mid-spring. This garden will continue to evolve over the years, but it is well worth the visit to see it in its first year.

Also notable on the grounds will be some of the new Rhododendrons and Azaleas along the walk to the Climatron.

The flowers that always bloom on time, no matter what the weather, are the thousands that will be featured in our Spring Flower Show, which opens to the public on March 8. I highly recommend a visit. It's the best cure I know for spring fever.

In keeping with our continuing work in research and conservation, this month the Garden is proud to recognize naturalist and artist Roger Tory Peterson by awarding him the Greensfelder Medal.

The Greensfelder Award was established in 1980 in memory of Albert P. and Blanche V. Greensfelder to honor individuals who have made substantial contributions to promote a better environment through conservation and improvements. Roger Tory Peterson certainly meets those criteria. He has educated and encouraged generations of Americans to appreciate the natural world.

Some of his work will be featured in the "Birds In Art" exhibit which opens in conjunction with the Spring Flower Show.

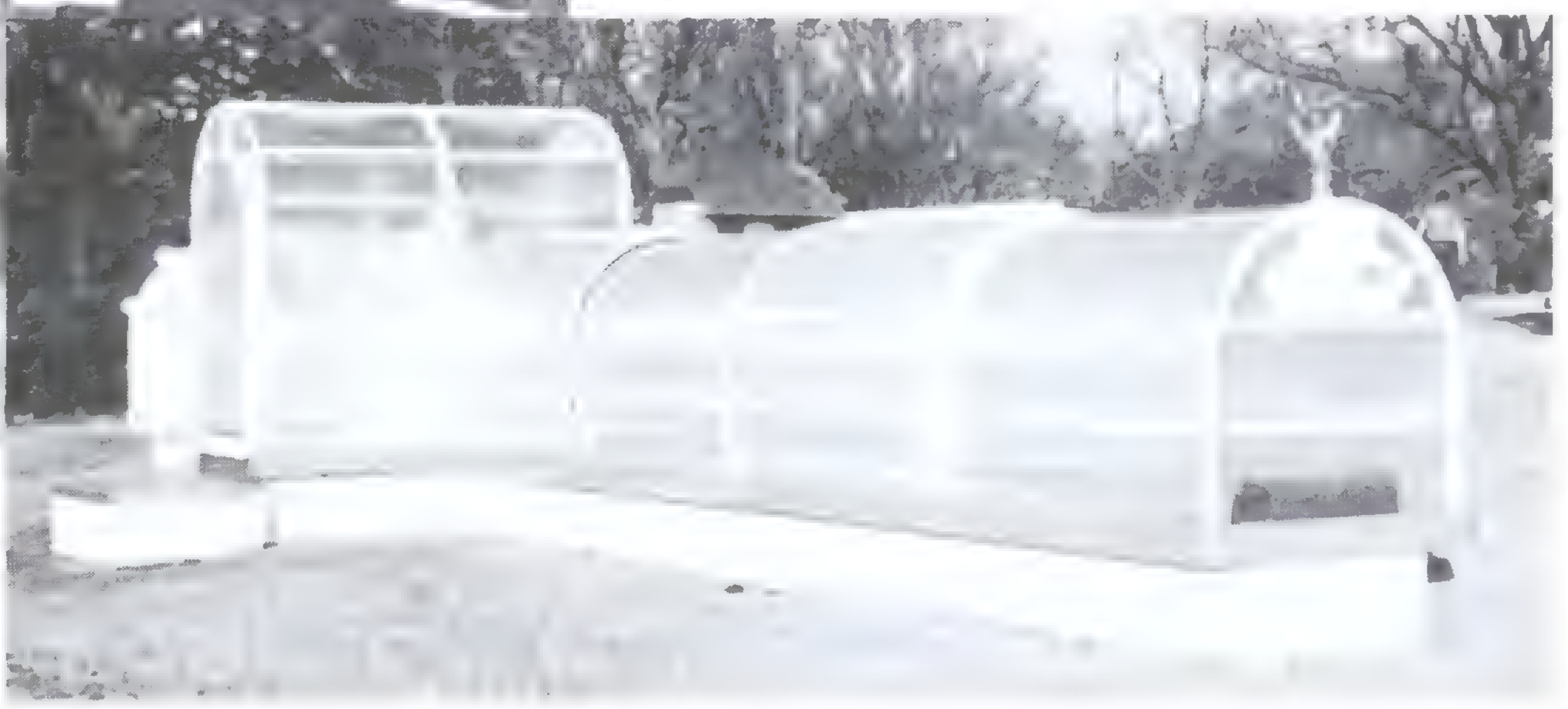
Peter H. Raven

From the Pumpkin Vine:

Henry Shaw, at a recent seance, promised to attend a Halloween celebration on October 26, 1986. Adults admitted with a child.

Hauntingly yours,
Hepatica, Witch

HIGH-TECH GREENHOUSE



Greenhouse designer Mike Jantzen, above, supervises installation of his "Growth Accelerator" in the Garden.

A NEW highly-experimental greenhouse has been donated to the Garden. The inventor and designer, Mike Jantzen of Carlyle, Ill., calls the structure a "Growth Accelerator." It is designed to reduce the amount of energy and space necessary to grow plants and increase greenhouse efficiency. The project was donated by Jantzen, his wife Ellen Jantzen, and Ted Bakewell, III. Guarantee Instrument Systems of Missouri was the manufacturer with transportation provided by Guarantee Electrical Co.

The greenhouse has three components. An insulated chamber stores plants during the night hours, cold spells, cloudy days or any other time when artificial light or darkness is preferred to sunlight. The "greenhouse" section has walls of a polycarbonate material with an acrylic covering that allows the penetration of natural light and provides some insulation.

Plants are transported between the two environments by a conveyor system which pulls trays of plants into the insulated chamber and stacks them at night, reversing the procedure in the morning.

Between these two chambers is the third compartment, a small work room. This area is the only one where a gardener will actually enter the structure to water and take care of the plants as they pass between the two environments.

The advantages of this greenhouse are several. It is very compact with no wasted space, therefore little energy will be needed for heating and cooling. Solar rods on the trays will absorb heat during the day, and release the stored heat at night. And a highly-controlled environment is created by the many options available for plant care: insulation or exposure, artificial or natural light, darkness or light and many more.

Although the system will initially be operated manually, Jantzen hopes that sufficient funding will eventually be provided to computerize the system so that decisions about the plant environment will be made automatically.

Jantzen has been experimenting with new concepts in greenhouses for the past several years. "My wife grows plants commercially," he said, "so I began trying to find ways to make the whole process easier and more efficient. The prototype I built for Ellen was very basic and inexpensive and is entirely operated by hand. But this model for the Garden is far more complex and its capabilities have not yet been realized."

"As it is now, someone here (at the Garden) will have to make the decisions as to which kind of environment to expose the plants to at any given time. But if I acquire the proper computer hookup, those decisions will become automatic at any time of the day or night. Hopefully, this will provide optimum growing conditions for plants."

It was Jantzen's original prototype which first caught the attention of Garden Member Ted Bakewell, III, who is also on the Members' Board. Bakewell was intrigued with the project and felt it belonged at the Garden, both as an exhibit and tool for horticultural research.

"The 'Growth Accelerator' represents the state-of-the-art in greenhouse technology," said Bakewell. "Mike and Ellen have worked with the foremost scientists and engineers in the field, and have incorporated the most advanced technology available to develolp what is surely the most sophisticated greenhouse to be found anywhere."

Alan Godlewski, the Garden's chief horticulturist, agrees. "We are anxious to see how the 'Growth Accelerator' will work. Many of the problems encountered in conventional greenhouses could be eliminated with this kind of structure. And the added benefit of energy conservation makes this project very attractive."

Charles Oertli, also a Garden Member and president of Guarantee Electrical Co., said his firm has been building the greenhouse for the past year. He is impressed with the mechanical operation of the structure and its ability to save energy. He also feels that developing a computer software program is essential to "realize the many possible applications it will have for research. Computerization will also make it an attractive and informative display for the public."

The Garden will initiate the greenhouse by propagating plants in it this spring. Since this is an experimental project, Jantzen plans to work closely with the Garden's horticulture staff to monitor the success of the greenhouse.

Plan a trip to the Garden soon to take a look at this new greenhouse. Located near the Demonstration Vegetable Garden, this new device may be the future of commercial plant propagation and growth.

Gardening In St. Louis

Wildflower Gardening

Nature's Democracy

The wildflower meadow is nature's best example of a plural society living in peace.

—George H. Allen

Spotting a few bloodroot *(Sanguinaria)* or trilliums *(Trillium)* peeking their heads out through the leaf litter is often our first indication spring has sprung. These beauties are seen predominately in wild areas during the spring but in fewer numbers others appear throughout the growing season. With a little time, preparation, and imagination, you can create a small pocket or an entire garden of colorful wild blossoms.

Many gardeners have been so busy introducing European or other imports to the landscape that we've overlooked the jewels under our noses. Our gardening heritage is quickly becoming the spectacular wild plants around us.

Successful wildflower gardening begins with choosing an appropriate mix of plants. Natural landscaping, the new gardening buzz-word, is the arrangement of native plants as they might grow together in the wild. In a typical natural garden, wildflowers may be restricted to a confined area, interplanted with the rest of the landscape or, on a grander scale, consist of an entire meadow of flowers.

Discovering these plants in the garden will be as much fun as in the wild. Not only are the flowers striking, but textures, branching patterns, and plant form will provide continued interest. Trees and shrubs, even a fallen log or a water feature will round-out the plant community.

GETTING STARTED

The easiest and most rewarding method is to choose plants native to the area that will survive in the existing landscape. Visit the English Woodland Garden, Shaw Arboretum or other nearby areas where wildflowers are thriving. Observe their conditions year-round if possible for a better understanding of their environment. In the meantime, select the site.

The site is most important. Before doing anything, identify what's growing on your site and remove unwanted species (such as poison ivy and weeds). Realistically consider what will grow well and naturally reproduce. Consider climate, amount and timing of rainfall, sunlight and type of soil.

Both sunny and shady locations are suited to wildflower gardening, but with different plants. Most soil conditions will also accommodate wildflowers. Soil porosity and pH are two key factors. Some wild plants such as Lady Slippers, wild Azaleas, or *Hepatica*, prefer an acid soil, while others abhor it. Most prefer a slightly acid to neutral soil. Have your garden tested before planting. Good drainage is a must in all soils. Rainfall varies considerably throughout the region and even within your site. Timing is also important. Seeds may need extra moisture to germinate. Be prepared to water the first year. Most wildflower plantings should be fairly self-sufficient thereafter.

After collecting your thoughts and evaluating your location, there are two ways to begin—seeds and transplants. For the beginner, don't rely too heavily on seeds. Germination is often difficult and unreliable. Most seed mixes are designed for large geographical regions with broad mixes of seeds for a variety of site conditions. This often produces unsatisfactory results. However, some seed companies are producing more specialized seed mixes for greater success. Individual seed packets are probably the most effective for quick results and a splash of color the first year.

Though more expensive, the best bet is to use transplants which are available through nurseries, mail order, or by collecting in the wild. The latter, however, is strongly discouraged. Collecting, even with the owner's permission, is often unsuccessful. In addition, many honest wildflower enthusiasts have been caught and heavily fined for collecting plants protected by law. (Many nurseries have been caught collecting plants that are hard to propagate but easy to collect such as the protected Lady Slipper Orchid). Stick with only reputable nurseries that can tell you if they collected or propagated the plants themselves and can provide information on the plants' habitats and local hardiness. Established transplants have a higher success rate.

Plant area natives that may survive by duplicating their natural habitat. If the conditions are similar, yours may also succeed. Higher germination rates, increased ability to resist insect and disease organisms, and greater hardiness make native plant material a better choice.

In each landscape there is a variety of microclimates with a selection of wildflowers suited to those conditions. A shady protected northern location where grass refuses to grow may be perfect for some hardy ferns, naturalized spring beauty and fall blooming *Lysimachia* (loosestrife). On the other hand, shade is generally at a premium for newly built homes but a wonderful mix of wildflowers will grow in a hot, sunny spot. *Coreopsis, Phlox, Asclepias tuberosa* (butterfly-weed), and many *Helianthus* (sunflowers) will brighten this area. For quick results, annual seeds such as Bachelor's Buttons can fill in while perennials get established.

PLANTING

Successful planting includes timing and planting care. Time plantings to allow the seeds or plants to establish quickly. Spring or fall seeding is recom-

WOODLAND GARDENS / *SHRUBS*

Amelanchier sp.	Serviceberry	small tree or shrub
Cercis canadensis	Redbud	light, open shade
Chionanthus virginicus	Fringe-tree	large shrub—white flowers
Cornus florida	Dogwood	small tree
Diospyros virginiana	Persimmon	
Fothergilla sp.	Fothergilla	beautiful white flowers
Hamamelis sp.	Witch-hazel	flowers in winter
Rhododendron catawbiense	Catawba Rhododendron	
Rhododendron vaseyi	Pinkshell Azalea	
Rhododendron viscosum	Swamp Azalea	
Viburnum sp.	Viburnum	large shrub or small tree, good fall color

FLOWERS

Arisaema atrorubens	Jack-in-the-Pulpit
Aquilegia canadensis	Wild Columbine
Asarum canadense	Wild Ginger
Claytonia virginica	Spring Beauty
Cornus canadensis	Bunchberry
Cyclamen neapolitanum	Cyclamen
Dicentra cucullaria	Dutchman's Breeches
Epigaea repens	Trailing Arbutus
Erythronium americanum	Trout-lily
Hepatica sp.	Hepatica
Iris cristata	Dwarf Crested Iris
Mertensia virginica	Virginia Bluebells
Mitchella repens	Partridgeberry
Parnassia asarifolia	Grass of Parnassus
Phlox divaricata	Phlox
Podophyllum peltatum	May-Apple
Polygonatum biflorum	Solomon's-seal
Sambucus canadensis	Elderberry
Sanguinaria canadensis	Bloodroot
Shortia galacifolia	Oconee Bells
Silene virginica	Fire Pink
Smilacina racemosa	False Solomon's-seal
Tiarella cordifolia	Foamflower
Trillium sp.	Trillium
Viola pedata	Bird's-Foot Violet

FERNS

Adiantum pedatum	Maidenhair Fern
Osmunda cinnamomea	Cinnamon Fern
Osmunda claytoniana	Interrupted Fern
Polypodium polypodioides	Resurrection Fern

MEADOW GARDENS / *GRASSES AND SHRUBS*

Andropogon geraldii	Big Bluestem
Lindera benzoin	Spicebush
Rhus typhina	Staghorn Sumac
Schizachyrium scoparium	Little Bluestem

FLOWERS

Chrysanthemum leucanthemum	Ox-Eye Daisy
Daucus carota	Queen Anne's Lace
Echinacae purpurea	Purple coneflower
Helianthus sp.	Sunflower
Lobelia cardinalis	Cardinal Flower
Penstemon digitalis	White-flowered penstemon
Potentilla simplex	Cinquefoil

mended. Check mixture labels. Rake seeds in but not deeply. Proper seeding rate is important so later seeds aren't crowded out. Five pounds per acre is rule of thumb.

Transplants should be moved when dormant or just before a flush of growth. Learn the plant's root system before planting. Some are shallow, while others have a tap root. Different planting preparation is needed for each. When planting near trees, dig a large hole removing all roots to allow the transplant to establish. Once they are planted, place a small stake or flag as a reminder.

MAINTENANCE

Once your gardens are established, wildflowers require very low maintenance. They often form their own mulch as plants grow then die back. Some pruning of trees and shrubs may be necessary to keep the atmosphere of the woodland garden. Open sunny spots need some attention over the years, though.

Natural succession, the progression from clear land to a deciduous forest environment, will take over. Annuals and perennials are followed by small trees and shrubs, and if left undisturbed for 20 or more years, a forest environment will develop. To prevent this and maintain wildflowers, annual maintenance is recommended. In shaded areas, hand weed invaders each year or heavily mulch to encourage desired species. Watch any especially invasive plants to avoid a monoculture. In sunny spots, you must encourage desired species by removing weeds which compete. The first year an even supply of moisture will help seeds germinate. Weeding individual species periodically can give the garden a real boost.

To start, I would suggest beginning small with a small area and expand as desired. The low maintenance and unexpected blooming are contagious.

The Garden Gate Shop carries a variety of books and supplies on different aspects of wildflower gardening you might enjoy exploring. Questions on this or other topics should be directed to the Answer Service, 577-5143, 9 a.m. to noon Monday to Friday.

—BobbiJo Jarvis

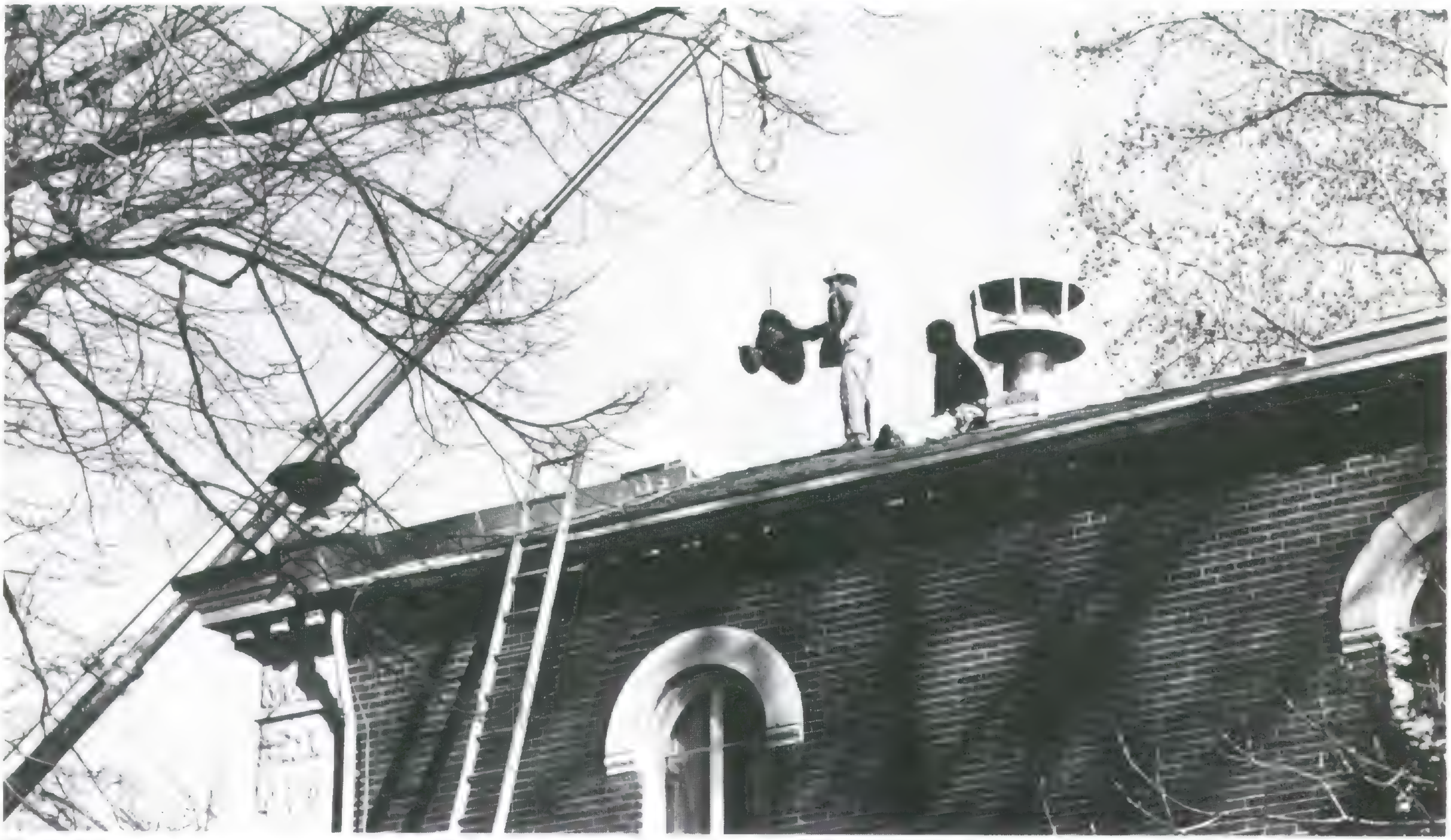
A LIVING LEGACY

The Azalea-Rhododendron Garden

The dazzling display of azaleas and rhododendrons that you see this spring on either side of the path north of the Climatron leading to the Ridgway Center is the result of a very generous gift from the estate of Eyvonne Huch. A life-long resident of Red Bud, Illinois, and a secretary at Pet Incorporated, Ms. Huch was fond of flowers and gardening. She was a frequent Garden visitor and a Member for many years.

The Garden was very fortunate and honored to receive one-half of her residuary estate with the other half going to her church where she was a very active member and sang in the choir. Garden staff worked with the trustee of the estate to find the most suitable memorial. Because of her fondness for flowers and gardening, the construction and maintenance of the rhododendron area was selected.

As you walk toward the Climatron you will see that one side of the path is dedicated to her parents, Lillie and Albert Huch, and the other is in her memory. Visitors for many years to come will enjoy the beauty that she has made possible through this thoughtful gift.

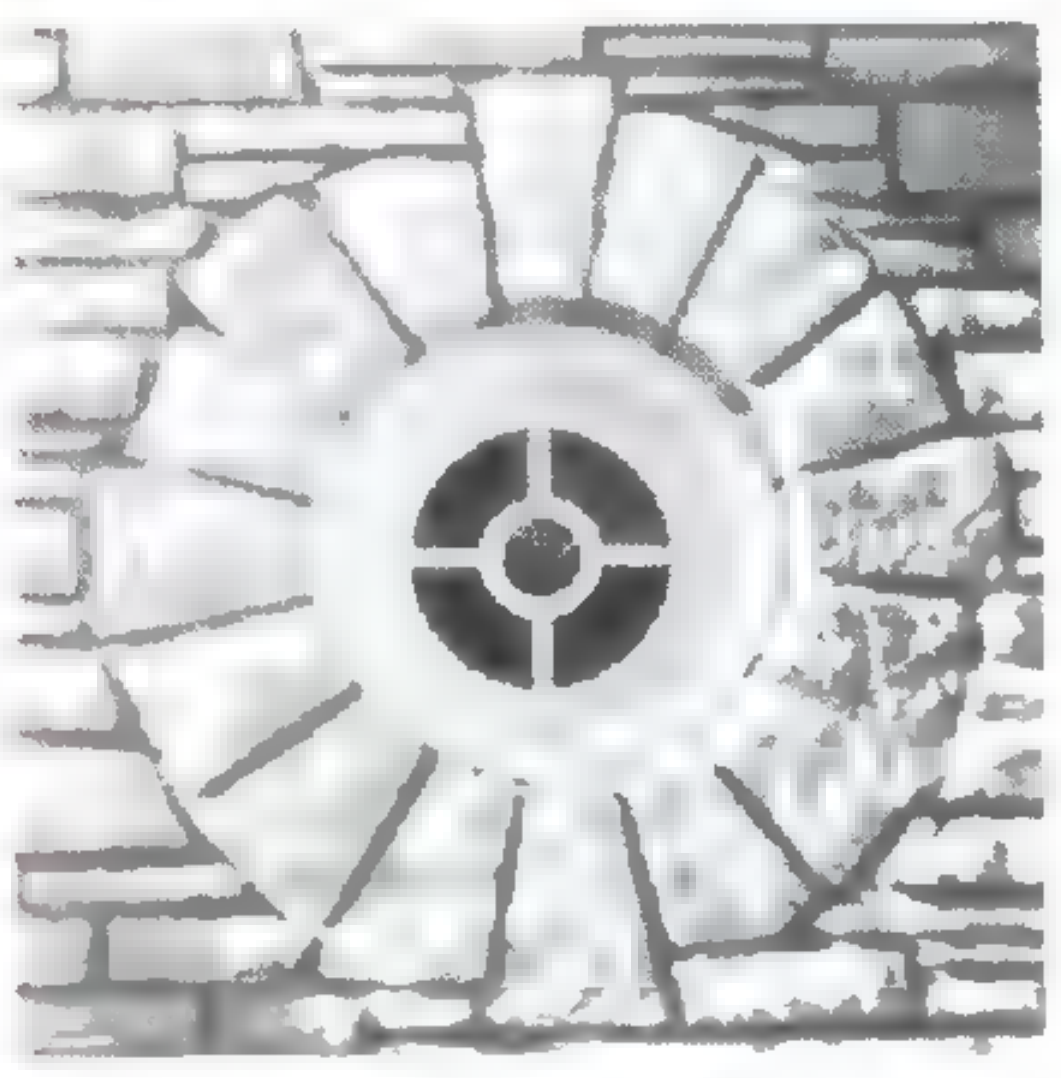


Everything eventually needs repair. But nobody's complaining that it took 127 years for the cast iron urns on top of the Museum Building to require maintenance. In fact, the urns themselves are in good condition, it's their mountings which are weak. Two of them fell down in a storm last fall and the others were removed by Kevin Mattingly, left, maintenance, and Ben Chu, horticulture, for sandblasting, painting and new mounting hardware.

NEWS FROM SHAW ARBORETUM

The Visitor Center

Visitor Center



Most visitors to Shaw Arboretum would be surprised to learn that the Visitor Center is 50 years old this year. Its sound appearance attests to the careful selection of building materials and quality of workmanship. In fact, the only repair required for this building since its completion in 1936 was the rebuilding of its portico last year.

This charming building and the adjoining gate house were designed by John Noyes. For the stonework, Mr. Noyes specified "the best grade of buff Bedford Indiana limestone, sand finish." For the beautiful and durable slate roof he specified that "all slate should be seagreen, eight variegated colors, quality to be 1 grade."

John Noyes was employed by the Missouri Botanical Garden from 1914 to 1944 first as a landscape designer and later as a consulting landscape architect. His work in the St. Louis area is well known, ranging from municipal parks and country clubs to private subdivisions and public housing projects. He completed the design of a preliminary master plan for the Arboretum in 1926. Certain features of this ambitious plan, such as the greenhouse complex, the three mile loop road to the Trail House, the now defunct apple orchard, and the 50 acre Pinetum were completed as originally designed.

The Visitor Center did not assume its present name and function until 1971 when the Arboretum's environmental education programs began and visitor attendance increased. On display inside are natural objects from various Arboretum habitats, a selection of books on natural history available for purchase and, at present, an exhibit of color photographs of the Arboretum's experimental prairie.

Visitors are required to stop at the Visitor Center and present their membership card or pay the admission fee. On weekdays the receptionist/secretary Betty Klott is on duty from 8 a.m. to 4 p.m. to greet visitors and receive telephone inquiries and program reservations. On weekends in spring and fall the Visitor Center is open from 10 a.m. to 5 p.m.

Ray and Amanda Garlick reside in the adjoining Gate House. Although Ray retired from Missouri Botanical Garden in 1984 he is still the gatekeeper and volunteers many hours working on the grounds.

—William A. Davit

LOOP ROAD TO OPEN

Shaw Arboretum will again open the Trail House Loop Road on Wednesdays only, for those who find walking difficult. For safety reasons, visitors are asked to stop and register at the Visitor Center. From April 9 through June 11, the Loop Road will be open to vehicles from 8 a.m. to 4 p.m. For more information, please call the Arboretum at 577-5138 or 742-3512.

SPRING WILDFLOWERS

The spring wildflowers make a glorious display in the woodlands at the Arboretum, especially in the Wildflower Reservation between the Trail House and the Meramec River. More than 200 species begin blooming in March, with more and more species coming into bloom during April and May. It is always a thrill to discover these wonders of nature, whether alone or with a group on one of the Spring Wildflower Walks conducted every Tuesday during April and May.

DAFFODILS

Another wonderful way to greet the spring is to walk amidst the thousands of daffodils blooming in the meadows of the Pinetum in April.

One Way To Control Dandelions / BY G. H. BISHOP

EDITOR'S NOTE: George Holman Bishop and Ethel Ronzoni Bishop came to St. Louis in the 1920s as members of the Faculty of the Washington University School of Medicine. He was a distinguished neurophysiologist and she a noted biochemist. Active in public affairs, the Bishops also were excellent and devoted gardeners. In the early '30s they purchased and restored an 1820 log cabin at 9385 Pardee Lane where they lived until their deaths in 1973. They bequeathed the Long-Bishop House to the St. Louis County Department of Parks and Recreation. Unfortunately their lovely "cultivated" wildflower garden has not been maintained. George Bishop was known for his exceptional practical abilities, his basic modesty, his remarkable way with words and his wonderful sense of humor. These qualities and his direct experience with gardening are evident in the following article which is reprinted from the Missouri Botanical Garden Bulletin, Vol. 45, June 1957 in time to be of use for the 1986 growing season. Modern chemicals have been substituted where appropriate.

THE following procedure does not claim to eliminate dandelions, but it will enable you to hold your own against them and the dandelions will hold their own against you so that the battle with them will finally come to a draw. Two principles are fundamental: any dandelion that blossoms, dies; and, no dandelion goes to seed on your domain.

So, you get (1) a home sprayer or a six-quart sprayer and put a three foot rod on it with an ordinary spray nozzle on the end (to enable you to reach the ground without stooping), (2) a gallon oil can with the top cut out, and (3) Round-up. Into the gallon can put one tablespoon of kerosene or furnace oil (modern fuel oil is the refuse from gasoline as sausage is from porkchops; but at least it is still greasy, and it sticks to dandelions like a stray dog to a garbage can), one large tablespoon of Ivory liquid, four to six tablespoons of Round-up, and fill with water, preferably soft and warm. Dump the mix into the sprayer and pump up to only moderate pressure and you're set. Don't drench the dandelions: one brief shot from the nozzle trigger held three inches above the weed and that plant will surely die. And don't hit anything else; this is strong medicine! When you can spray wild garlic out of the lily patch you have acquired the technique, but it is cheaper to try your practice shots among the shrubbery.

Now prepare a large paper sack by rolling the edge so it won't tear when you slap the mosquitoes and jerk it. Grasp the carry handle of the sprayer with four fingers, the edge of the sack between thumb and handle, the nozzle wand with the other hand, and squirt a fine spray on each of the first five dandelions you meet. Then drop the nozzle, slap the mosquitoes, and bend your proud back to pick off every yellow head from those five plants and put them in the sack. Proceed to five more until you have them all. Repeat every other day until no more yellow heads appear, even on the plants sprayed last time—they can make seed even when sick. The first five years are the hardest, for by that time you will have reduced the population to a manageable level.

To accomplish a comparable job spraying all over is more expensive, is impossible where there are other plants, kills clover in the lawn, is less effective, lacks the personal touch and fails to satisfy the urge to kill; besides some of the dandelions will elude you and go to seed anyway. Every seedhead that blows away is a job for next year and you can rely on your neighbor's dandelions to keep you sufficiently supplied. After five years of slaughter, the yield should be about two quarts to a gallon of spray every half hour (if you are a spry walker) from an acre of ground—with the average neighbors.

The best time to hunt dandelions is when the mosquitoes are biting, which at this time of year is between six and eight a.m. sun time. Some people can fool themselves that they are saving daylight by setting their clocks ahead; but nobody, except Joshua, ever stopped the sun and you can't fool the dandelions. These same people think mosquitoes bite in the evening; but that is when they are tired and are just looking for a nightcap. Breakfast is their heavy meal. You will need boots or go barefoot, for the dew is heavy and the gray heads shed their seeds when they dry out. This is also the ideal time to play golf, and slaying dandelions relieves you of that obligation. You get the pleasant walk, the fresh air, and the bird songs. Also, stooping to pick heads is as good as looking for golf balls in the tall grass, is a lot cheaper and gives you something for your money. If your back recovers in two days so you can do it again, you don't need a doctor. It will keep you savagely busy mornings until the mornings are so hot you wouldn't play golf anyway; but this is as far as this method goes. If you have dandelions you will have other things to do later such as watering the grass and killing moles. Sitting on the grass with a cool drink waiting for them to wiggle, then digging them out appeals to some people especially after dandelion time when it really gets hot. This offers a continuing opportunity to further exercise your aggressive instincts without alerting the police.

Killing dandelions is one of the best ways of enjoying your landscape. You see it in detail repeatedly and really get acquainted with it. You can combine dandelion-slaying with bird-watching which may justify the latter (the Forest Park police once arrested an early-evening bird-watcher for snooping in the bushes and charged him with disturbing the peace); but I find that most of the

Spraying all over lacks the personal touch and fails to satisfy the urge to kill.

birds get along all right without being watched. On your travels you will meet wild onions, yellow dock, chickweed and plantain, not to mention horseweed and wild lettuce, and other enemies which you can take a shot at in passing; but no need to stoop over to pick the flowers for they won't go to seed before they die.

I find it helps to name various weeds by names of people I don't like. A passing shot is equivalent to a sneer. But dandelions are my dish; I just call them *Hoi polloi, canaille* or other terms of general disapproval. One has to get more or less personal to make this method work successfully and a good strong expression of animosity helps keep up the morale. I save my best invectives for those gray-headed so-and-so's that have already shed some seeds—those I missed the last time. Even as in golf, you have to keep your eye on the ball to make a perfect score.

But, of course, most people, especially the neighbors, won't take the trouble. This is why there are so many dandelions. ■

15 Years at the Garden

Two more staff members have joined a very select group of people who have been employed by the Garden for 15 years or more. Joining the cadre of long time employees are Marilyn Svejkosky, manager of the Garden Gate Gift Shop, and Paul Brockmann, superintendent of General Services.

FROM THE LIBRARY

Carla Lange Remembered

Morton K. Lange, whose late wife, Carla, was the Garden's assistant librarian for more than 20 years, holds an illustration of *Clematis forsteri* from the Garden's set of *Banks' Florilegium* in the Library's Rare Book Room. Carla's many friends donated funds to purchase Part XX of this historic work, recording the 18th century travels of Captain Cook, in her memory. The specimen from which the drawing was made was collected in New Zealand in October, 1769.

Behind the Scenes

Dale Johnson Joins Library Staff

Dale Johnson recently joined the Garden's staff as Reference Librarian and Bibliographer. Prior to coming to St. Louis, he was employed by Academic Press, Inc., in San Diego.

As a botanist and botanical bibliographer, he brings to the Library knowledge and insight which will enhance the Garden's research efforts. He holds a Ph.D. in Botany from the University of California, Berkeley, and was a Hunt Fellow at Carnegie-Mellon University-Pittsburgh, Pennsylvania.

MARCH-APRIL

HIGHLIGHTS

MARCH 1 & 2
Saturday and Sunday

Spring Gardening Fair

10 a.m.-5 p.m., Ridgway Center. Co-sponsored by the St. Louis Post-Dispatch, the Fair will feature exhibits by local nurseries and other garden suppliers. Saturday's activities will feature a series of lectures by horticultural experts on landscaping fundamentals. Advance registration for the lecture is required. Tickets $5 per person. Watch the Post for details or call 577-5125.

MARCH 29
Saturday

Bunny Bash

11 a.m.-4 p.m., Ridgway Center. Bugs Bunny will host a special Easter celebration for children with lunch, cartoons and other treats throughout the day. Lunch served at 11 a.m. and 12:30 p.m., $6 per person, reservations required. Call 577-5125 beginning March 10.

MARCH 7 / *Friday*

Members' Preview of Spring Show and Exhibit

5:00 p.m.-8 p.m., Ridgway Center. Come and enjoy an early peek at this beautiful flower show and art exhibit. Music, cash bar and buffet.

MARCH 8-APRIL 6

Birds in Arts

9 a.m.-5 p.m., Monsanto Hall. This exhibit of original bird paintings and sculptures features a variety of dramatic and beautiful art pieces that depict waterfowl, gamebirds, birds of prey, wading birds and songbirds in their natural habitats as created by the world's leading wildlife artists.

MARCH 15
Saturday

Members' Day Rose Lecture

11 a.m. & 2 p.m., Shoenberg Auditorium. Learn the latest varieties and care techniques from the Garden's Rosarian, Monica Colombo. For Members Only!

APRIL 5
Saturday

Members' Arbor Day Celebration

10:45 a.m.-3 p.m. Hey kids! Celebrate Arbor Day with Dad. Bring Dad down to the Garden and show him a good time. Enjoy storytelling, tree planting, free seedlings, historic tree tour and more. Enter the "My Dad is Special" contest. For Members Only!

APRIL 17, 18, 19 & 20
Thursday-Sunday

Spring Plant Sale

9 a.m.-6 p.m. Thursday and Friday, 9 a.m.-5 p.m. Saturday and Sunday, Garden Gate Shop and Orthwein Floral Hall. Stock up now on one of the best selections of annuals, roses, gifts and books anywhere and save an additional 20%. (see page 17).

MARCH-APRIL

DAY-BY-DAY

MARCH

NOTE: Complete course descriptions and registration information is contained in the *Spring 1986 Courses and Lectures* brochure which was mailed in January. To sign up or check on class availability call the Education Department at 577-5140.

1, 2 **Spring Gardening Fair**
10 a.m.-5 p.m., Ridgway Center.
(See Highlights.)

4 **Ornamental Trees for St. Louis**
7 p.m.-9 p.m., Ridgway Center. $6 Members, $7 non-members.

5 **Understanding How Plants Grow**
7 p.m.-9 p.m., Ridgway Center. First of five Wednesday sessions. $30 Members, $35 non-members.

6 **Plant Propagation**
7 p.m.-9 p.m., Ridgway Center. First of five Thursday sessions. $35 Members, $40 non-members.

7 **Night Hike**
8 p.m.-10:30 p.m., Arboretum Visitor Center. $4.50 Members, $5.50 non-members.

7 **Members' Preview of Spring Flower Show and Exhibit**
5:00 p.m.-8 p.m., Ridgway Center.
(See Highlights.)

8 **Spring Flower Show**
9 a.m.-5 p.m., Orthwein Floral Hall, through April 6. This show is an extraordinary display of spring flowering plants and bulbs, bringing the first sights and scents of the season indoors.

8 **Birds in Arts**
9 a.m.-5 p.m., Monsanto Hall, through April 6. *(See Highlights.)*

8, 9 **Ernst Haas Slide Show**
11 a.m. and 2 p.m., Shoenberg Auditorium. See Haas' extraordinary "Flower Portfolio" slide show which was commissioned exclusively for the Garden in 1984.

8 **Bluebird Workshop**
10 a.m.-2 p.m., Arboretum Visitor Center. $15 Members, $18 non-members.

9 **River Styx P.M. Series**
8 p.m., Shoenberg Auditorium. "Grace Paley and David Starobin." For ticket information call 361-0043.

10 **Close-Up Nature Photography**
7 p.m.-9 p.m., Ridgway Center. First of four Monday and one Saturday sessions. $50 Members, $55 non-members.

10 **Gardening Techniques**
7:30 p.m.-9 p.m., Ridgway Center. First of five Monday and one Saturday sessions. $40 Members, $48 non-members.

11 **Planting and Pruning Roses**
10 a.m.-noon, Ridgway Center. $9 Members, $11 non-members.

11 **Home Fruit Culture**
7 p.m.-9 p.m., Ridgway Center. $6 Members, $8 non-members.

12 **Rocky Mountain Flowers**
7:30 p.m.-9 p.m., Ridgway Center. Illustrated talk and preview of The Nature Place trip in July. Free to all.

14 **Night Hike**
8 p.m. to 10:30 p.m., Arboretum Visitor Center. $4.50 Members. $5.50 non-members.

15 **Members Day Rose Lecture**
11 a.m. & 2 p.m., Shoenberg Auditorium. *(See Highlights.)*

15 **Planting for Success**
9:30 a.m.-12:30 p.m., Ridgway Center and Garden grounds. $10 Members, $12 non-members.

15 **Halley's Comet Viewing**
Shaw Arboretum. Pre-dawn viewing. Gate opens one hour before sunrise. Members free, $1 non-members.

18 **Training and Pruning Fruit Trees**
7 p.m.-9 p.m., Ridgway Center. $6 Members, $8 non-members.

19 **The Garden in Watercolors**
9 a.m.-noon, Ridgway Center. First of six Wednesday sessions. $50 Members, $56 non-members.

19, 20 **Herbs: Their Uses and Culture**
9:30 a.m.-2:30 p.m. both days, Ridgway Center. $25 Members, $30 non-members.

20 **Garden Weed Control**
7 p.m.-9 p.m., Ridgway Center. $6 Members, $7 non-members.

25 **How to Select a Tree Care Service**
7 p.m.-9 p.m., Ridgway Center. $5 Members, $6 non-members.

25 **Woodcock Courtship**
5:30 p.m.-7 p.m., Arboretum Visitor Center. $4.50 Members, $5.50 non-members.

27 **The World of Annuals**
7 p.m.-9 p.m, Ridgway Center. $6 Members, $7 non-members.

29 **Bunny Bash**
11 a.m.-4 p.m., Ridgway Center.
(See Highlights.)

30 **Haas Slide Show**
11 a.m. and 2 p.m., Shoenberg Auditorium.

(continued on next page)

MARCH-APRIL

DAY-BY-DAY

APRIL

1 **Growing Small Fruits**
7 p.m.-9 p.m., Ridgway Center. $6 Members, $7 non-members.

1 **The Perennial Garden**
10 a.m.-noon, Ridgway Center. First of two Saturday sessions. $18 Members, $22 non-members.

1 **Spring Wildflower Walks**
9:30 a.m.-1:30 p.m., Arboretum Visitor Center. First of nine *individual* walks. $1 Members, $2 non-members.

2 **Basics of Floral Design**
7 p.m.-9 p.m., Ridgway Center. First of three Wednesday sessions. $60 Members, $72 non-members.

3 **Birding for Beginners**
7:30 p.m.-9 p.m., Ridgway Center. First of two Thursday sessions and a Saturday field trip. $25 Members, $30 non-members.

5 **Members' Arbor Day Celebration**
10:45 a.m.-3 p.m. *(See Highlights.)*

5 **Basket Making**
10 a.m.-4 p.m., Arboretum Visitor Center. $20 Members, $25 non-members.

8 **Summer Bulbs**
7 p.m.-9 p.m., Ridgway Center. $6 Members, $8 non-members.

9 **Designing a Home Herb Garden**
7 p.m.-9 p.m., Ridgway Center. First of two Wednesday sessions. $12 Members, $15 non-members.

10 **Plants for St. Louis Rock Gardens**
7 p.m.-9 p.m., Ridgway Center. $6 Members, $7 non-members.

15 **Hostas and Companion Plants for the Shade**
7 p.m.-9 p.m., Ridgway Center. $5 Members, $6 non-members.

15 **Dried Flower Creations**
7 p.m.-9 p.m., Ridgway Center. First of six Tuesday sessions. $48 Members, $12 non-members.

17-20 **Spring Plant Sale**
9 a.m.-6 p.m. Thursday and Friday, 9 a.m.-5 p.m. Saturday and Sunday, Garden Gate Shop and Orthwein Floral Hall. *(See Highlights.)*

17, 18 **Summer Bulbs Lecture**
6 p.m. Thursday and 11 a.m. Friday. Shoenberg Auditorium. BobbiJo Jarvis, MBG Public Horticulturist. Free.

18 **Night Hike**
8 p.m.-10:30 p.m., Arboretum Visitor Center. $4.50 Members, $5.50 non-members.

19 **Wildflower Walk with Edgar Denison**
10 a.m.-noon, Arboretum Visitor Center. $3.50 Members, $4.50 non-members.

19 **Breakfast with the Birds**
8 a.m.-11 a.m., Gardenview Restaurant. $7 Members, $9 non-members.

19 **Introduction to Edible Landscaping**
Lecture, 11 a.m., Shoenberg Auditorium; Workshop, 1 p.m.-4:30 p.m. Author and lecturer Robert Kourik gives a colorful overview of all the basic aspects of edible landscaping. *Lecture:* $2 Members, $3 non-members. *Workshop:* $17 Members, $22 non-members.

20 **Haas Slide Show**
11 a.m. and 2 p.m., Shoenberg Auditorium.

25 **Night Hike**
8 p.m.-10:30 p.m., Arboretum Visitor Center. $4.50 Members, $5.50 non-members.

26 **Breakfast with the Birds**
8 a.m.-11 a.m., Gardenview Restaurant. $7 Members, $9 non-members.

27 **Sunday Afternoon Wildflower Walk**
1 p.m.-4:30 p.m., Arboretum Visitor Center. $4.50 Members, $5.50 non-members.

28 **Ground Covers in the Landscape**
7 p.m.-9 p.m., Ridgway Center. First of two sessions. $12 Members, $15 non-members.

30 **Intermediate Floral Design**
7 p.m.-9 p.m., Ridgway Center. First of three Wednesday sessions. $60 Members, $72 non-members.

GREAT RIVERS OF THE WORLD/SPRING LECTURE SERIES

■ **Tuesday, April 8, 1986**
1:30 p.m. and 7:30 p.m., Shoenberg Auditorium, Ridgway Center
"The Historical Mississippi by Canoe"

Author, songwriter, musician Roger Taylor takes us on a re-enactment of the historical journey of Pere Marquette. Slides and guitar music.

■ **Tuesday, April 15, 1986**
1:30 p.m. and 7:30 p.m., Shoenberg Auditorium, Ridgway Center
"The Amazon, World's Mightiest River"

Dr. Alwyn Gentry, Missouri Botanical Garden, will describe the astonishing diversity of plant and animal life of the Amazon basin based on his many years of exploration of this region. Slide lecture.

■ **Tuesday, April 22, 1986**
1:30 p.m. and 7:30 p.m., Shoenberg Auditorium, Ridgway Center
"The Sacred Ganges"

Keith Tepperman, The Vedanta Society. From Calcutta to the Himalayan sources, this slide lecture will highlight the history and mythology which gives the Ganges its sacred significance.

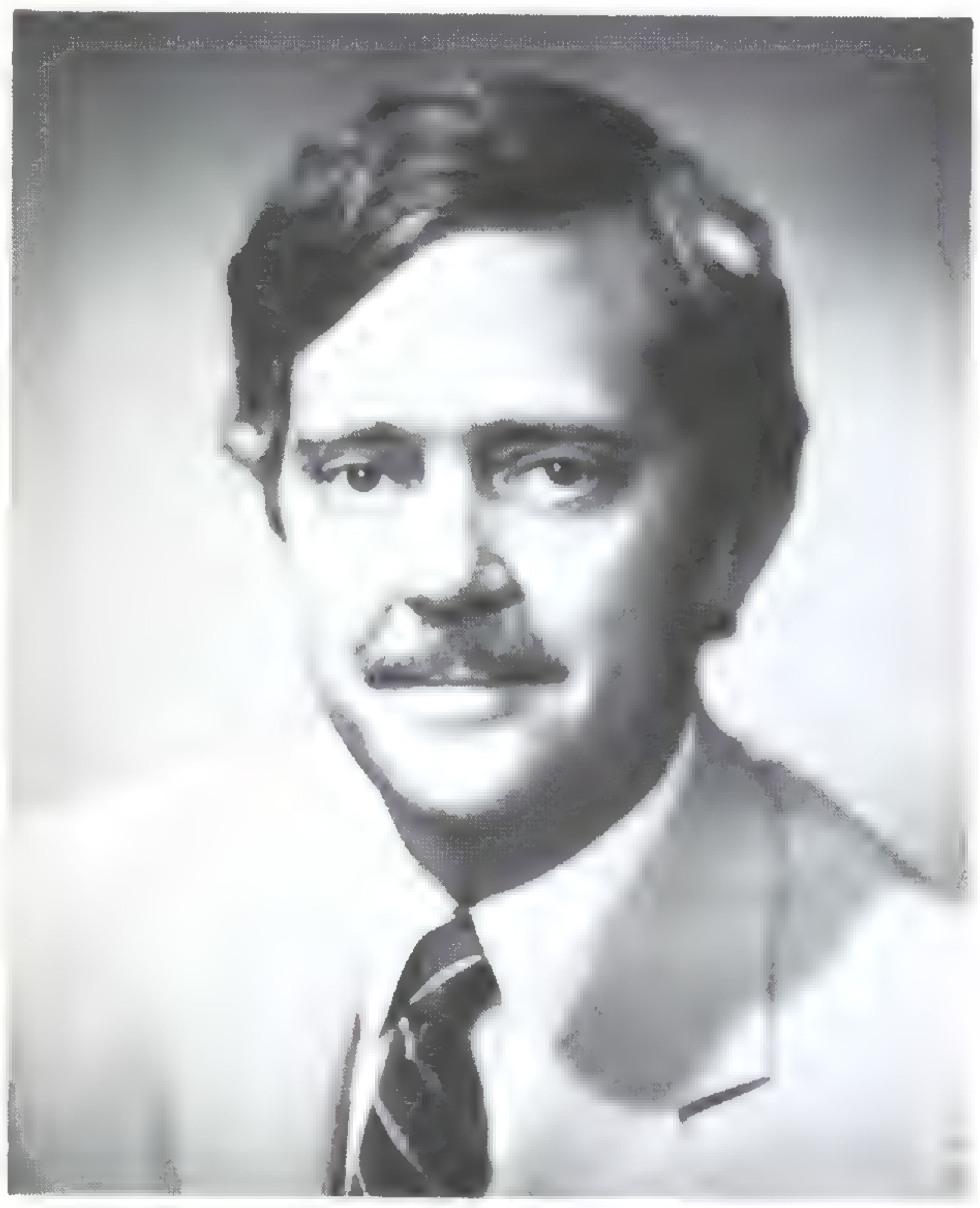
■ **Tuesday, April 29, 1986**
1:30 p.m. and 7:30 p.m., Shoenberg Auditorium, Ridgway Center
"The Nile from Cairo to Aswan"

Archaeologist, lecturer Patrick Hecker journeys up the world's longest river describing the centuries old way of life and the impact of the Aswan Dam on that life and the ecology of the river.

All lectures are free.

Board of Trustees News

New Trustee, Board Officers Re-elected



Lucius B. Morse III was unanimously elected to serve on the Board of Trustees of the Missouri Botanical Garden at the Board's annual meeting on January 22.

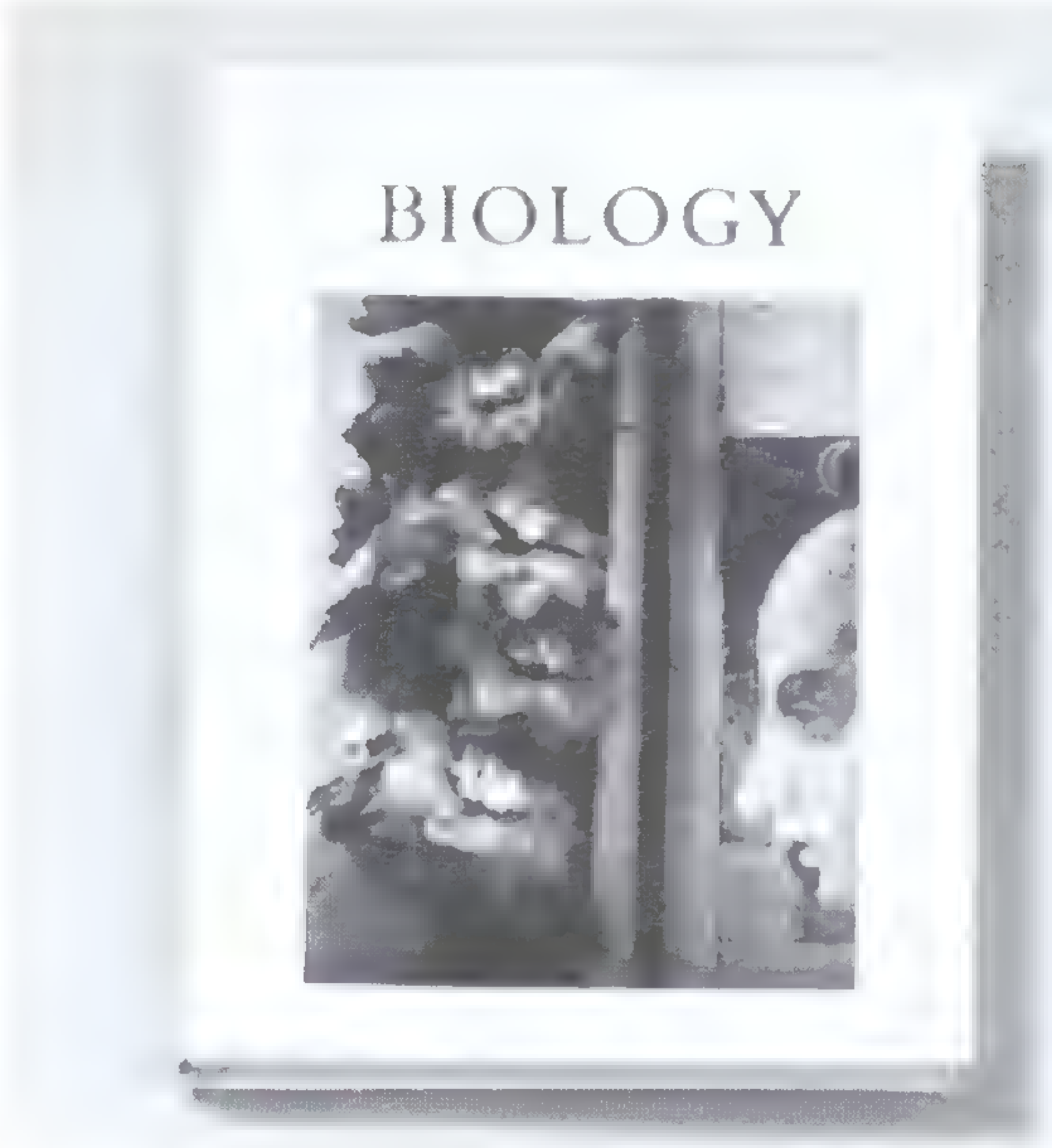
John H. Biggs was re-elected President of the Board. Robert Kresko was re-elected First Vice President and O. Sage Wightman III was re-elected Second Vice President. Mrs. Walter G. Stern and John K. Wallace Jr., also were re-elected as term trustees.

Mr. Morse has been active in a number of civic, business and cultural organizations. He served six years on the board of directors of the Loretto-Hilton Theatre (now the Repertory Theatre of St. Louis) including one year as vice president-external in charge of fund raising. Other fund raising activities have included work on behalf of Washington University and the United Way of Greater St. Louis. Mr. Morse is also a past chapter chairman of the Young Presidents Organization of St. Louis.

Mr. Morse is president and chairman of the board of L.B.M. Enterprises, Inc. of St. Louis, whose subsidiaries include Mid-America Printing Co., The Composing Room, Inc., Boulevard Motors, Inc., Boardman Printing Co. of Jackson, Tennessee, and Chimney Rock Park theme park in Chimney Rock, North Carolina. He and his wife, Bonnie, reside in Clayton.

Garden Director Receives Education Award

Garden Director Dr. Peter H. Raven was the recipient of the 1985 Science Education Award given by the Biology Association for Teachers, a regional organization of high school and university life science instructors. The group is an affiliate of the National Association of Biology Teachers.



Raven Co-authors College Biology Text

Garden Director Dr. Peter H. Raven and Washington University Biology Professor Dr. George B. Johnson have just co-authored a major new college-level introductory biology textbook appropriately entitled "Biology."

The textbook uses a strong evolutionary approach to traditional biological topics while incorporating modern developments in molecular biology and genetics. Not surprisingly, this text differs from most undergraduate texts in that it includes a large section on botany for a more balanced introduction to all major areas of biology.

This large text, 1,152 pages, is lavishly illustrated with over 1,700 photographs and illustrations, many in full color. The book is published by the St. Louis based C. V. Mosby Company and is available in the Garden Gate Shop and most college book stores.

KNIGHTS IN THE NEWS The family of Garden Trustee Charles F. Knight was very much in evidence at the Missouri Botanical Garden during the recent holiday season. First, on December 23, Tower Grove House was visited by the new Veiled Prophet Queen, Jennifer Knight, in her first public appearance after her coronation. She is pictured above left with Garden Director Peter H. Raven and Tower Grove House Historical Committee Chairperson Mrs. Landon Y. Jones. The very next week, on January 3, the St. Louis Globe-Democrat presented its "Man of the Year" award to her father in a ceremony held in Shoenberg Auditorium. Pictured above right being congratulated on the award by St. Louis County Executive Gene McNary, left, is Charles F. Knight and his wife, Joanne.

FROM THE MEMBERSHIP OFFICE

New Members' Board Representatives

At the January meeting of the Members' Board (formerly the Executive Board of the Members) seven new board members were added. Pictured above with President Sue Oertli, third from left, are, from left to right, Sue Rapp, Ted Bakewell III, Mrs. Oertli, Tim Dorsey, Jane Daniel and Mary Longrais. New members not pictured are Anne Bowen and Andrea Schankman.

MEMBERS' DAYS

MARCH 15 Rose Enthusiasts!

You'll enjoy this lecture on new varieties, care techniques, as well as varieties and problems common to our locale. Meet the Garden's rosarian, Monica Colombo at one of these lectures, 11 a.m. or 2 p.m. in the Shoenberg Auditorium Make a day of it. Have lunch, take in the lecture and take a tram ride through the Garden as it prepares to burst into spring!

APRIL 5 Kids! Celebrate Arbor Day with Dad!

Bring Dad down to the Garden and show him a good time. Storytelling, a special planting of childrens' member tree, free tree seedlings, a historic tree tour and other activities! Bring or send your "My Dad is Special" nomination (you'll get it in the mail soon) and you and Dad may win dinner at Dierdorf and Hart's and Cardinal Baseball tickets.

Dad's Day Schedule:

- 10:45 Storytelling (4 to 7 years old)
- 11:15 Storytelling (8 years old and older)
- 1:00 Tree Planting
- 1:15 "My Dad is Special" Drawing
- 2:00 Historic Tree Tour

VOLUNTEERS NEEDED

We are getting ready for our Spring activities and invite you to join us. We need volunteers to work outdoors in Landscape Horticulture. You will be working directly with the staff, planting, weeding, pruning and mulching, Monday through Friday and there is a minimum time commitment of three hours per week.

We also need volunteers in our research area, the shops and Tower Grove House. Training and orientation are provided. If you are interested or would like more information, please call Jeanne McGilligan, volunteer coordinator, at 577-5187.

MBG Guides Expand Services

The invaluable resource of the Garden's volunteer tour guides has been expanded to include additional explanation of Missouri Botanical Garden major flower shows throughout the year.

You may remember seeing them during the Fall Flower Show, Holiday Floral Display and most recently the Orchid Show. Look for their smiling presence at the Spring Flower Show, too.

Public Tours of the Garden are available Saturday and Sunday at 2 p.m. These tours are approximately one hour, cover seasonal changes and new developments. No reservations are necessary. Meet at the Ridgway Center first floor sign announcing the tour.

Rent the Garden at a Discount

For you, our Members only, a 20% discount for all 1986 events booked after January 15. Dinner parties, luncheons, wedding ceremonies and receptions come alive in the unique surroundings of the Garden. Complimented by a superb caterer, Green Tree Gourmet, the Garden's own, and you can't miss. Call Judy Luebbert at 577-5144 for further information on prices and available dates.

Project Amazon October 21-November 7

A most unique opportunity is yours . . . to explore the Mighty Amazon with its amazing species and diverse forests in the grandest of style. The Missouri Botanical Garden and the New York Botanical Garden are co-sponsoring this trip of a lifetime aboard the luxurious adventure cruise ship, the *Society Explorer.* At the helm of this magnificent expedition will be two of the world's best known Amazonian botanists, Dr. Alwyn H. Gentry, associate curator and botanist, Missouri Botanical Garden, and Ghillean T. Prance, senior vice president of The New York Botanical Garden.

This expedition will allow its participants to explore the river, view the jungles along the river, so rich with flora and fauna, and visit the villages and tribes along the way. While exploring the tributaries, there will be an opportunity to fish for piranha. Early risers may join an ornithologist topside where he points out the bird life during the early hours of each day, and botanists guide participants on walks through the jungle to study the exotic plant life.

The Amazon, the world's second longest river, is a giant fresh water reservoir, fed by tributaries of varying size from seven countries along its 4,000 mile length. It is estimated that two-thirds of all the river water in the world is in the Amazon basin. It was discovered in 1542 by Francisco de Orellana, who named it Maranon (that which only God can unravel). In his writings, he mentioned a tribe of "warlike women" which reminded him of the Amazons in Greek mythology, hence the name which is used today. The source of the main stream is a tiny brook in the Andes at an altitude of 17,000 feet. It flows eastward until reaching the ocean where it has force enough to pump fresh water more than 100 miles into the Atlantic.

This wonderful adventure begins in Iquitos, Peru's chief town of the jungle region located 2,300 miles from the Atlantic and marks the last navigable point on the upper Amazon. It is here where Dr. Gentry, director of the Flora of Peru project, will begin familiarizing tour goers with the Garden's work. Visits will be made to several research sites of the New York and Missouri Botanical Garden and Peruvian institutions with which they collaborate. Through these visits and lectures on the biological wonders of the region participants will develop a true appreciation for the research programs of both gardens and the dilemmas facing the Amazon region as it is developed.

The tour will continue on the *Society Explorer* with its exceptional ability to navigate confined waterways. A fleet of inflatable landing craft will allow participants to land on remote and untouched river banks. The *Society Explorer* carries 100 passengers and each each will have an outside view from the cabins which have been tastefully refurbished. Each cabin has private toilet and shower facilities, a music system, ample storage, two lower berths and individual climate control. The dining room has been enlarged to serve all passengers at one sitting, with excellent cuisine and wines. The *Society Explorer* has a new fitness center and fully equipped lecture room/movie theatre. The wide range of facilities on board will help tour goers to return emotionally refreshed, physically fit and intellectually stimulated.

The eighteen day Project Amazon begins October 21, 1986. Accommodations aboard the *Society Explorer* start at $3,290, depending on the choice of cabin. Air transportation costs are additional. For a complete itinerary and reservation form contact Dana Hines, 577-5108.

Tour St. Louis' Private Gardens

WHAT: Members' Tour of private gardens from Florissant to Shaw Neighborhood to Clayton and Ladue.

WHEN: Sunday, June 29th 10 a.m. until 5 p.m. Rain or shine.

WHERE: A variety of nine private gardens chosen; ranging from a Japanese garden in Florissant to a fabulous estate overlooking the Missouri River complete with a reproduction of a Mississippi riverboat; to a sculpture garden in Ladue; a peek at a landscape architect's own garden; a behind-the-scenes look at Dr. & Mrs. Raven's garden and an English country perennial and Boxwood garden in the middle of the city.

This will be a very special day. Invitations will be mailed to members.

Remember Mom

Mother's Day will be here before you know it. Plan now to give Mom something very special. This Mother's Day, . . . give her the Garden! A membership will entitle her to Garden visits in every season, flower shows, plant sales, discounts, the Bulletin and more. She'll receive a special Mother's Day Greeting with her membership card. Call the Membership Department at 577-5118 or send the application on page 17 to order her year of fun, flowers and festivities. Mom will love you for it!

Something New

The Garden will soon introduce a new and useful "thank you" gift for its renewing members . . . a Rand McNally Road Atlas & Travel Guide. Each member who renews their membership in the coming year will receive this handy gift. The Atlas, with a lovely garden scene on the cover, will be your travel companion wherever you go.

Record Membership

The Missouri Botanical Garden reached a new high in 1985 . . . a membership of 16,486 at year's end. You made it all possible through your avid support and participation. Members give the Garden life. You are the lifeblood that makes the Garden more than an "institution." Thank you, Members, one and all!

SUNDAY BRUNCH

Simply the most beautiful and bountiful brunch in the city. Set in the Garden. Everything you could possibly desire—traditional breakfast items, along with homemade pastries, pancakes, sweet German omelettes, oriental chicken, fruit salad, fruit juices, biscuits and more—all made right here. Brunch is served from 10 a.m. until 1:30 p.m., $8.95 for adults, $3.75 for children under 12. Enjoy.

Call 577-5196 for more information.

For Younger Members

Gifts from the Trees

Sugar maple leaf

Bring on the pancakes, French toast and waffles! It's maple syrup time! Every year, in early spring, around St. Patrick's Day, sap from maple trees starts to run. The sugary sap is collected by placing small wooden or metal spouts into the trunks of **sugar maple** trees.

First, a hole is drilled about three inches into the trunk of the sugar maple. The spout, called a spile, is then tapped into the hole and tilted slightly downward. A covered bucket or a plastic bag is hung from the spout to collect the sap that flows out of the hole. A good tree can produce 20 or more quarts of sap in twelve hours!

The sap is collected in the bucket or plastic bag every day for at least two weeks. Each time the bucket or bag is emptied, it is hung once again from the spout. The emptied sap is stored in a large container until enough has been collected to make maple syrup. It takes about 40 quarts of sap to make one quart of syrup.

When enough sap has been collected, it is placed into a pan for boiling down. It is boiled until most of the water in the sap has turned to steam (evaporated). When this extra water has boiled off, the sap that remains is maple syrup. The syrup is then poured through a strainer to remove any material, such as bits of wood or bark, that may have been collected.

What does the sugar maple look like? How can you recognize it? The sugar maple has a trunk with branches that tilt upward. It is covered with a dark, shaggy gray bark that has deep grooves. Its twigs and buds are reddish-brown and the buds are opposite each other. In spring and summer, its light green leaves look like the one pictured on this page. The seeds of the sugar maple spin to the ground in spring, looking like wings or helicopter propellers. Its leaves turn a beautiful yellow, and then gold/rust in fall.

After you have located a sugar maple tree, begin watching its lower branches in early March, when nights are cold and days are warm. When you see little icicles appearing at the ends of broken branches, you will know that the sap has started to run. Maple sap collectors need to be ready with all their equipment, since the collecting season may only be two to four weeks long. As soon as new spring buds appear on the tree, the season is over. The collecting time is short, but the taste of this sweet gift from the trees will be remembered for a long time!

—Ilene Follman
Education Consultant

Maple Syrup Treats

You may have tasted maple syrup poured over pancakes or waffles. Here are two more delicious ways to eat it.

Log Cabin Sundae. Pour maple syrup on vanilla ice cream. Scrumptious!

Sugar on Snow. Heat maple syrup to at least 20° above the boiling point of water. Then dribble it in a thin stream across fresh, clean snow. The syrup will harden instantly, making long strings of chewy maple candy.

PUZZLE

Unscramble the words below to find the products made from maple sap.

pleam gusra

lampe rcmea

eplam ncyda

amelp yprus

ANSWERS: maple sugar, maple cream, maple candy, maple syrup

Did You Know...

...That sugar maple trees may grow as tall as 135 feet?

...That the sugar maple must be about 40 years old before its sap can be collected?

...That the Indians were the first people to use maple trees for maple syrup?

...That a sugar maple tree can produce as much as 100 drops of sap per minute?

From the Garden Gate Shop

March

Spring at last!

Planting time is here. The Plant Shop has a vast collection of wonderful seeds. Everything from flowering annuals and vegetables to unusual varieties of herbs, wildflowers and perennials. Also a greatly expanded selection of the latest planting and gardening accessories.

Easter is a time for new beginnings and the shops are preparing for these exciting times with fresh new plants and gifts. Buyers have just returned from Texas and Florida with thrilling new merchandise for every occasion. The Plant Shop will be featuring miniature roses along with a rainbow of colors in other blooming plants. The Gift Shop is brimming over with Easter decorations. Charming bunnies in all shapes and descriptions. Everything from ceramic to plush. Delightful music boxes and special Easter ornaments to brighten up your home. Remember your special friends with a gift from the Garden Gate Shop. Gift certificates are also always available.

April

The **Spring Plant Sale** returns on April 17-18-19 and 20th with an impressive new selection for your home and garden.

The sale will feature hundreds of varieties of colorful annuals and perennials to make your surroundings the talk of the town.

Roses—your favorite—try a beautiful new hybrid or a lovely old tried and true variety. The popular miniature roses, in many enchanting varieties, will also be offered at our sale.

The book department has a vast selection of gardening and flower books including a wide variety of Ortho Books for every need.

The popular "The Garden Diary," the monthly care for midwest gardens, will be featured during the plant sale.

As always, the shops as well as the Orthwein Floral Hall will be filled with exciting new plants and gifts at a 20% savings to our Garden Members.

Hours are 9 a.m. to 6 p.m. on April 17 and 18 and 9 a.m. to 5 p.m. April 19 and 20.

Rocky Mountain Adventure

The Education Department is sponsoring a Rocky Mountain Family Adventure July 6-12, 1986, at The Nature Place, Florissant, Colorado. Staff include the Garden's David Wilson; Dick Coles, Director of Washington University's Tyson Research Center; Bud Wobus, Geology Professor at Williams College; and a Colorado wildflower expert. Participants in 1985 ranged in age from 5 to 78. Program activities include birding, photography, wildflower identification, hiking and "just sitting" in the mountains.

For information check the Spring 1986 Courses and Lectures brochure, or call the Education Department at 577-5140.

GIFT MEMBERSHIP ORDER FORM — *Please mail three weeks prior to occasion:*

☐ Birthday ☐ Mother's Day ☐ Other____________________

Gift To:

NAME____________________

ADDRESS____________________

CITY__________STATE______ZIP______

TELEPHONE____________________

Sign gift card:____________________

Date Needed By:____________________

Regular Membership $35. Contributing Membership $75.

Gift From:

NAME____________________

ADDRESS____________________

CITY__________STATE______ZIP______

TELEPHONE____________________

☐ Enclosed is my check for $____________________

☐ Please charge: VISA No.____________________

MasterCard No.____________________

Name as it appears on card:____________________

For more information call 577-5118. Please make checks payable to: Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

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NOVEMBER - DECEMBER 1985

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Mr. and Mrs. Milton Kushkin

Dr. Jon C. Allison
Mr. L. J. Azinger
Daniel and Karen Baumgartner
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Richard T. Brockmeyer
Hendrick A. Geerlof
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Plants To Remember

Hardy Succulent Garden

This winter few of us enjoyed being outdoors for extended periods of time. Many plants even look like they would prefer to be indoors. Few people would expect one garden at Missouri Botanical Garden to survive and even more surprising to see plants thriving in the Hardy Succulent Garden.

These fleshy plants aren't from the Sunbelt but cacti and succulents hardy to St. Louis. Three major plant types are displayed; *Opuntia*, or Prickly Pear; Sedums; and Sempervivums, the best known of which is Hen and Chicks.

If you choose to grow them, hardy succulents thrive in a sunny spot with well-drained soil requiring very little water or fertilizer. An added bonus is that these plants are easy to grow and free of pests. Some protection from the cold winter winds, especially the north and west winds, is helpful. If natural protection (a building, snow or shrubbery) isn't available, a loose mulch of leaves held down with bird netting or burlap will give added insulation. Annuals can be incorporated in the summer, such as Zinnias, Marigolds, Cosmos, or non-hardy summer blooming Euphorbias.

—BobbiJo Jarvis

The Hardy Succulent Garden is located in front of the Desert House.

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Missouri Botanical Garden

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FROM THE **President**

THE MISSOURI BOTANICAL GARDEN continued its tradition of service to the people of the St. Louis metropolitan area during 1985 with the generous help of the staff, Members and area residents.

The impact of the Garden on St. Louisans is perhaps best reflected in our membership totals. In 1985, paid memberships grew by eight percent, or 1,161, to a record level of 16,486. This increase places the Missouri Botanical Garden at the top of the list of cultural institutions in the St. Louis region and maintains our distinction of having the largest member base of any botanical garden in the world.

But it is the enthusiastic support of the general public that is the greatest measure of our success. More than a half a million visitors walked through the Garden last year to view our outstanding displays; to attend a lecture, concert or event; or to take advantage of the dozens of educational courses and programs offered. Among the many highlights of the past year were four fabulous flower shows, art exhibits of local and national significance, Botany Field Days, summer evening concerts and, of course, the annual Japanese Festival.

In 1985, we also celebrated the 25th anniversary of the completion of the Climatron. This magnificent structure has captured the hearts of the citizens and serves as a symbol not only of the Garden but of the forward-looking nature of the community. The Climatron has served the area well during its quarter of a century in St. Louis but is now in need of some much deserved repair and modernization. In order to begin to raise the needed capital to renovate this landmark, area residents were asked to purchase "deeds" to the plastic panes in the Climatron's dome. The response was heartening. About 4,000 individuals and businesses contributed almost $200,000 to this campaign, assuring its eventual success.

Our internationally respected botanical research program continued its long tradition of adding to our knowledge of the world around us. The Garden's herbarium acquired more than 100,000 new plant specimens, primarily from Central and South America and Africa where our research program is most active.

Especially important to our research program is the fact that we were able to raise more than $1 million this year for the interior redesign and renovation of the John S. Lehmann Building, our research facility. This included wide support from our membership to meet an $85,000 challenge grant from the National Endowment for the Humanities and a $350,000 challenge grant to complete the fund raising from the Kresge Foundation. We also received very special support in 1985 for this project from Mrs. Anne L. Lehmann, the Shoenberg Foundation, Mrs. Hermann F. Spoehrer, Mrs. Fred O. Oberheide, Mr. and Mrs. Joseph H. Bascom and Mr. and Mrs. Wallace H. Smith. This work should be complete by the end of 1986 and will enable the research department to have the space and facilities it needs for its very important work.

The Garden continues to maintain its distinction of having the largest member base of any botanical garden in the world.

The Garden is also very fortunate to have as its director a man who exemplifies the global importance of this institution. In 1985, Peter Raven added to his already impressive list of accomplishments the distinction of being named a John D. and Catherine T. MacArthur Foundation Fellow, elected President of the Organization of Tropical Studies, appointed a Curator of the University of Missouri, and named the Honorary President of the Third National Congress of Botany in Peru.

The Garden gave an honor of its own last year to two most deserving individuals. Marlin and Carol Perkins received the Henry Shaw Medal for their contributions to conservation and a better understanding of living things through their work with the "Wild Kingdom" television series and the Wolf Sanctuary. I am very proud to have served as president of the Board of Trustees during this exciting time in the Garden's history and look forward to what the future holds for the Missouri Botanical Garden and the St. Louis area.

John H. Biggs

John H. Biggs
President, Board of Trustees

FROM THE Director

THE MISSOURI BOTANICAL GARDEN enjoys a symbiotic relationship with the St. Louis community. We openly seek opportunities to complement activities of benefit to the wider community, and in return we enjoy generous support throughout the region. This past year provided salient examples of this beneficial relationship.

Our concern for the environment, and for excellence in botanical research and horticulture, made the Garden a magnet for others interested in the natural world.

In support of the St. Louis International Arts Festival, the Garden sponsored an exciting exhibit of "Botanically Inspired Ceramics." Black History Month brought poet Nikki Giovanni and a variety of jazz artists to the Garden for two sell-out performances. We worked with the Japanese community to present the tenth annual Japanese Festival, and "Shalom, Israel" paid tribute to the rich culture of the Jewish community. We worked in concert with garden clubs and societies, with school groups, senior citizen groups and our immediate neighborhood.

In return, we were rewarded with unprecedented attendance and support from the community. The Botanical Garden Subdistrict of the Metropolitan Zoo-Museum District continued to provide critical operating funds. The 25th birthday of the Climatron was an occasion of celebration for more than 4,000 visitors. It also provided a gratifying level of sentimental and financial support for the planned renovation project.

During 1985, we initiated cooperative projects with other cultural institutions and helped to support new development in St. Louis. The St. Louis Museum Collaborative enjoyed support from the Missouri Botanical Garden. We developed programming in conjunction with the Saint Louis Art Theatre and many more institutions. We installed educational displays in Union Station and Plaza Frontenac, and provided information and merchandise to the Gallery of Museum Shops in St. Louis Centre. While we formed many new alliances in 1985, we continued important long-term activities with Washington University, the University of Missouri-St. Louis, Mercantile Library and others.

During our second century of growth, it is important that we honor the traditions of the past, while preparing carefully for our future. This is especially true in administrative areas not seen by the public. This past year several programs were instituted to foster productivity and efficiency of operation. Word processing systems were introduced to most areas of operation. A computer system was designed and implemented for scheduling both routine and preventive maintenance work. Computerized scheduling of events, private functions and education classes helped to ease a rapidly expanding schedule. New emphasis was placed on concern for visitors and employees by reorganizing our safety program. The Garden's popular Answer Service, which provides a direct link to expert gardening information, was relocated into remodeled facilities. Part of Flora Gate was remodeled to provide additional space for private parties, and the first steps were taken in remodeling the John S. Lehmann Building to accommodate our intensified research programs.

Several changes in auxiliary areas, as well, should provide better service to both Garden visitors and Members. The remodeling and new management of the Gardenview Restaurant has provided a wide variety of high quality food without a wait. Kitchen remodeling, the services of an in-house caterer, and the purchase of additional furniture have greatly enhanced the Garden's ability to accommodate private parties. Combined with a strong marketing effort, these innovations resulted in nearly 37,000 persons in attendance at private functions during 1985.

The Garden Gate Shop, which combines the efforts of staff and volunteers, set a new sales record in 1985. Sales were $1.1 million, up 13% over the previous year.

During this year when intense administrative improvements were being made, the Garden also remained a place of very high visibility. Our concern for the environment, and for excellence in botanical research and horticulture, made the Garden a magnet for others who are interested in the natural world.

This past year, we hosted the annual convention for the National Gardening Association. The Missouri Botanical Garden was also the subject of a segment for "Victory Garden," the popular PBS gardening show, and increased numbers of visitors were drawn to the Garden by the excellence of our major flower displays.

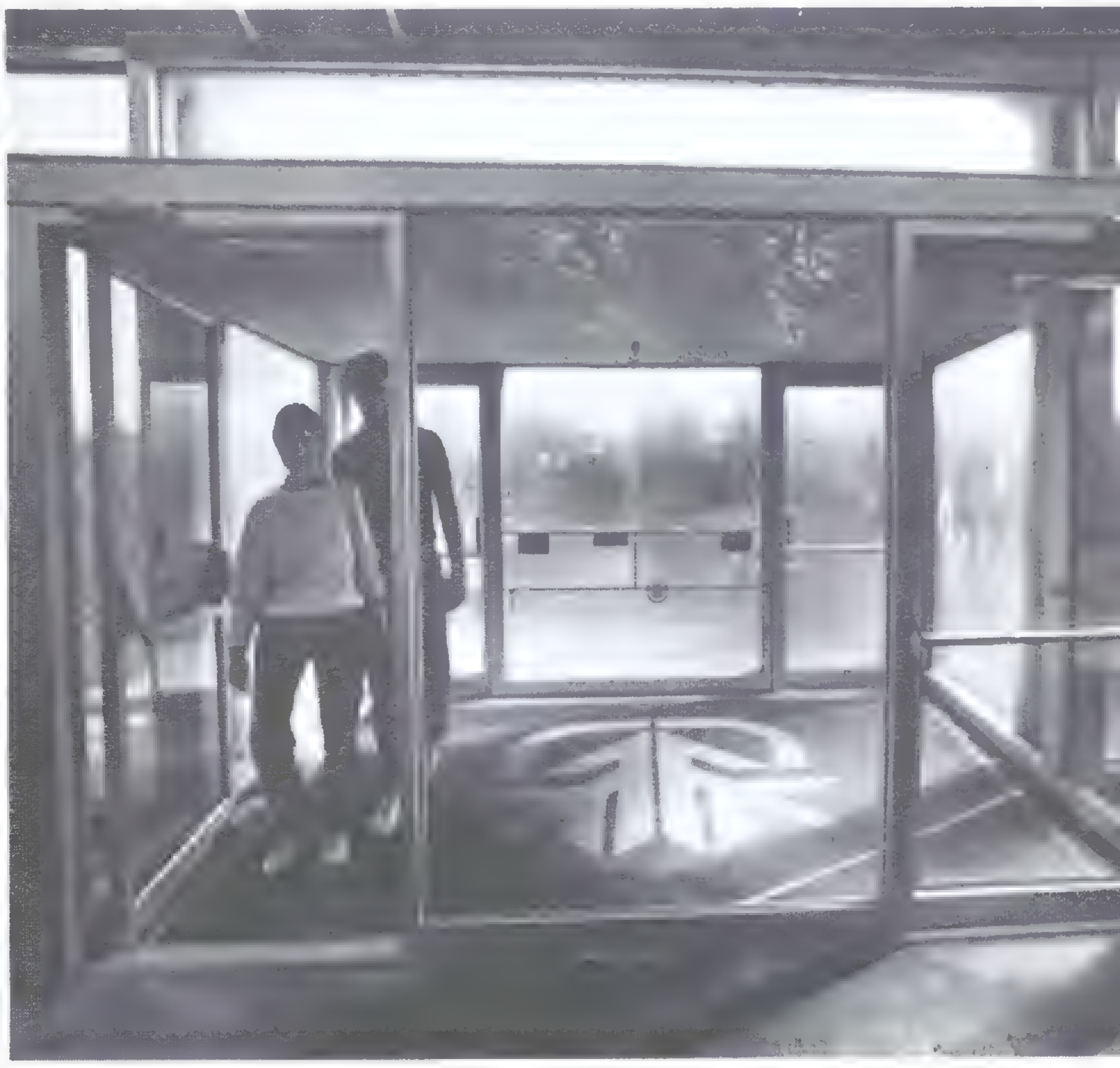
The international importance of our research efforts were highlighted by the meeting of the Association for the Taxonomic Study of the Flora of Tropical Africa, which was held here at the Garden. The Garden's research program was featured in "The Plant Hunters," a segment of the PBS "Nature" series. "The Plant Hunters" was aired in this country and Great Britain, and is now being distributed world-wide. Garden staff worked with the World Wildlife Fund to sponsor "Future In The Wild," an exhibit and program accenting the crisis in plant and animal conservation.

While visibility and recognition are satisfying to staff and volunteers who have contributed countless hours of work, that recognition provides a much more critical factor. The recognized excellence of our work provides credibility to the importance of our message.

A continual striving for excellence was the key to our success this past year. It remains our motivation for the years to come. Whether in areas of high visibility or behind the scenes, a great number of people worked devotedly so we can pronounce the year a success. To the staff, the volunteers, the Members' Board and the Board of Trustees, thank you for your efforts. We can now conclude that 1985 was, in fact, a very good year.

Peter H Raven

Dr. Peter H. Raven
Director



Research

THE HEART of the Garden's research program, the herbarium, a collection of documented, pressed and dried plants, acquired more than 100,000 new specimens during 1985. These were received through our own collecting programs, exchanges, gifts, and purchases.

These plants were collected throughout the world, but primarily in Central and South America and Africa, where the Garden has its most active research programs. From the plants collected by Garden staff, the herbarium sent 80,248 to other institutions as exchanges or gifts. A total of 79,294 plants were mounted and filed in the herbarium in 1985.

One indication of the scientific value of the collection is the amount of use it receives. Professionals study the Garden's collection by borrowing the specimens or by visiting the herbarium in person. More than 45,000 specimens were sent out on loan in 1985.

Several overseas visitors spent significant amounts of time in the herbarium during 1985, carrying out research on their own special projects and making use of our rich collections. Among these were Dr. Takuji Hoshino, of the Biological Laboratory, Okayama University of Science, Okayama, Japan, on a one year visit starting in April, to study tropical grasses; Drs. Kåre and Birgitta Bremer, of the Museum of Natural History (Stockholm) and the University of Stockholm, respectively, were studying Asteraceae (sunflower family) and Rubiaceae (madder family); and Mary Kalin Arroyo, Universidad de Chile, Santiago, spent six months working on data from the Chilean Andes.

The Garden hosted the Eleventh Congress of AETFAT, an acronym for l'Association pour l'Étude

RANO ALA
TOBIN AMPIJOROA

Taxonomique de la Flore d'Afrique Tropicale (Association for the Taxonomic Study of the Flora of Tropical Africa). This was the first congress to be held outside of Africa or Europe, and signals the international importance of the Garden's research program in Africa. We now have active programs in southern Africa, Cameroon, Tanzania, and Madagascar, with staff members living in the last three countries during 1985.

Over 1,700 pages in seven issues of the Garden's oldest scientific series, the *Annals of the Missouri Botanical Garden*, were published during 1985. Three issues included important symposium proceedings "Historical Perspectives of Angiosperm Evolution," held at the American Institute of Biological Sciences annual meeting; "The Order Myrtales," held at the XIII International Botanical Congress in Sydney; and the "Implications of Phylogenetic Analysis for Comparative Biology," held at the Garden's own Annual Systematics Symposium.

During 1985, the research division's program of computerization of botanical information made significant progress.

Five volumes of the *Monographs in Systematic Botany* series, which was begun in 1978, were published: "The Ethnobotany of the Kwanyama Ovambos," a group in Namibia, by R. J. Roden; "The Botany and Natural History of Panama: La Botánica e Historia Natural de Panamá," edited by W. G. D'Arcy and M. D. Correa A.; "Contributions to Systematic Bryology, dedicated to Lewis E. Anderson;" "The Systematics and Evolution of the *Oenothera caespitosa* Species Complex," by W. L. Wagner, R. E. Stockhouse and W. M. Klein; and "Index to Plant Chromosome Numbers, 1982–1983," edited by P. Goldblatt.

Our monthly newsletter for herbaria around the world, *Herbarium News*, completed its fifth volume, giving up-to-the-minute information about personnel, publications, requests for material, and loan activity.

During 1985, the research division's program of

computerization of botanical information made significant progress. The goal of the program, begun two years ago through the generous contributions of the Robert Brookings Smith and Nancy Morrill Smith Tropical Research Fund, is to maintain an up-to-date data bank of information about the plants of the New World, that is to say, North, Central, and South America and nearby islands.

The main thrust of the program last year was the acquisition of computer files of fundamental information from sister institutions and the modification of these files to run on the Garden's computer with its unique software.

The most important acquisition was a file of all the names of the genera of plants from the Smithsonian Institution. This file, of about 38,000 records, was adapted to act as an index and allows us to immediately file species data in the correct genus and family for easy future manipulation and updating. Having this index file in place means that existing, separate files of different kinds of information about the same plants can now be merged, saving space in the computer and speeding access to the information.

During the year the data base of information about species of New World grew from about 120,000 records to about 180,000. Included in the data base is information about names, distributions, chromosomes, morphology, and uses of plants. Information sent from our botanists stationed in the field in the tropics is now routinely computerized and added to the date base as appropriate.

The Garden's Library, one of the major botanical libraries in the world, added 1,249 new book and serial titles to its collection in 1985. An additional 1,264 books and serials were recataloged under a grant from the Pew Memorial Trust. The recataloging program, a joint project with The New York Botanical Garden Library to recatalog both collections to the Library of Congress system, will continue through 1989, in order to complete the remaining 6,550 titles.

In addition to books, the Library holds the Garden's archival collection, which includes all non-book materials and which serves as a valuable scientific, historical, and geographical resource for researchers. Major accomplishments in the archives during 1985 included response to 288 reference questions, as well as a complete self-study and report.

Significant 1985 acquisitions included Pierre Magnol, *Prodromus historiae generalis plantarum in quo familiae plantarum per tabulas disponuntur,* 1689, and certain papers from Ralph E. Cleland, Erna R. Eisendrath, and David M. Gates.

The richness of the Library's collections make it necessary to have an in-house conservation unit. Skilled bindery personnel refurbish deteriorating items and also implement procedures that prevent or retard further damage. For rare books, a book restorer may perform full restorations in paper, cloth, or leather. Other treatments include rebindings in leather, cloth, paper, and pressboard, as well as general repair and recasing. In 1985, the bindery processed 2,034 items, including 49 restorations and 233 rebindings. The bindery supervisor, Susan Finley, received a $2,000 grant from the St. Louis Mercantile Library Association for two weeks of private instruction in vellum binding.

A sad note for 1985 was the loss of Carla Lange, who had given dedicated service to the library for twenty-one years.

M. R. Crosby

Dr. Marshall R. Crosby
Director of Research

Education

DURING 1985 the Missouri Botanical Garden continued to be a valuable learning and educational tool for the numerous audiences participating in educational programs. The education department, with its eleven full-time and six half-time staff members provided a variety of educational programs to 79,100 youth and adults in metropolitan St. Louis.

The education staff and volunteers continued to provide quality programs in horticulture, botany, natural history, arts and crafts, and environmental sciences for youth, families, adults and senior citizens. St. Louis City and County public and private schools participated actively in the department's offerings both at the Garden and Shaw Arboretum, with the able assistance of both the volunteer education instructors and guides. The Pairing-Sharing, Magnet and Partnership Programs continued to be ever popular ways for school children to learn from tours and activities of the Garden's variety of botanical and horticultural collections.

The Garden is a national leader in its educational efforts to establish model programs in science education in public and private schools.

Suitcase Science programs continued to increase in their popularity with teachers. These nine science activities are available to teachers to check out and use in their classroom. They provide supplies, props, teaching aids, background information and follow-up activities for children from kindergarten through the eighth grade. Several teacher training sessions were held with a grant from the Joyce Foundation to familiarize more teachers with this program and to develop additional programs.

The increased staff in the department allowed for greater community outreach to many groups and individuals. The department has created a horticultural training program with St. Mary's High School, using volunteers to train students in the fundamentals of horticulture/greenhouse skills and maintenance in order to become a self-sufficient operation. The department staff has begun to develop other outreach efforts to provide programs or services in community gardening, career training through student internships, and to the physically handicapped.

The improvement of quality science education (pre-school—12th grade) was reflected in the numerous outreach efforts provided to in-service teachers to directly improve the quality of science instruction in public and private schools. The Annual Fall Science Symposium, sponsored by the St. Louis Community Foundation, had as its theme "Beyond 2001: Science Education for the Next Generation."

The second Chautauqua workshop, funded by the National Science Teachers Association and the National Science Foundation, presented a four-day workshop, "Ecology and Environmental Science," and several "Suitcase Science Workshops," funded by the Joyce Foundation, provided ways in which local teachers could find the latest in science education for immediate classroom use.

In addition to workshops, area teachers and volunteers made extensive use of the Stupp Teacher Resource Center's textbooks, posters, audio-visual materials, vertical files and other resource materials. This center is located in the Education wing of the Ridgway Center and is funded by an annual grant from the Stupp Foundation. The department also sent a staff member to Colombia, South America, to help train teachers there in environmental education.

Other departmental programs included the spring lecture series which explored the rose family's history, biology, cultivation, practical uses, and horticultural varieties; participation with the botany department in Botany Field Days; and work with the Garden's public horticulturist to develop outreach gardening programs for all ages and audiences.

Numerous grants from various national, regional, and local agencies allowed the department to continue to operate many of its programs and to develop others. These grants have enabled the education department to address the needs of improving the quality of science instruction with students and their teachers at the local level.

Granting agencies recognize that with their financial support, the Missouri Botanical Garden is a national leader in its educational efforts to establish model programs in science education. Some of these included: the St. Louis Board of Education, ECO-ACT program in student leadership; Joyce Foundation, ECO-ACT and Suitcase Science program development and teacher training; St. Louis Community Foundation, Science Symposium for teachers; Arts and Education Council/CAMELOT Special Projects Fund, community outreach in science with families; National Science Teachers Association, Chautauqua teacher training program in ecology/environmental science; Association of Science and Technology Centers, conducting teacher training workshops in ECO-ACT; the Stupp Foundation, development and implementation of the Education Teacher Resource Center; and the Samuel D. Soule grant for programs for senior citizens.

The exemplary science program in high school student leadership, ECO-ACT, continued its active training of students and elementary and secondary teachers, both at the Arboretum and Garden, in the fundamentals of ecology and environmental sciences. The high school students developed and taught elementary students, while receiving high school credit, knowledge and renewed interpersonal skills, and published newsletters and an annual yearbook of their efforts.

Adult education, both at the Garden and Shaw Arboretum, provided numerous classes, programs and family tours with hands-on activities in a variety of areas of horticulture, gardening, botany, and arts/crafts utilizing plant material and also in the area of local history with the assistance of the Missouri Historical Society. The adult education course staff enriched their offerings with a wider variety of hands-on activities to families with children.

The volunteer groups within the department continue to serve as a major link between the Garden and general public, all undergoing intensive annual training to provide this service. The Answer Service, dedicated to serving the public, answered 16,553 phone calls to help the public resolve a wide variety of plant problems. The Speakers' Bureau provided 103 church, school and civic groups with slide talks in numerous areas of botany and horticulture. The Master Gardeners continued their training under the Missouri Cooperative Extension Service and provided public slide talks and assistance to the senior citizen program. The volunteer guides continued in their 16th year to provide guided tours of the Garden's collections to school groups, adults,

EDUCATION

families and special visitor groups.

The Samuel D. Soule Center for Senior Citizens offered seasonal programs to more than 2,000 individuals and groups in the St. Louis metropolitan area with hands-on programs at the Garden or slide presentations in 32 senior adult residences or facilities. This popular program, provided by the generous donations of the Soule family and friends, continues to offer quality programs for today's ever increasing population of active senior citizens. This program is available to any senior citizen in the area.

Tower Grove House, with 28,678 visitors from all 50 states in the U.S. and abroad, provided an opportunity for all to visit Henry Shaw's country residence and participate in many special tours and activities. These included luncheons in the Tea Room, a Henry Shaw birthday celebration, a course with the Missouri Historical Society on the life and times of Henry Shaw, a craft fair, the decoration of the Tower Grove House by numerous organizations for the Christmas holidays and the annual candlelight tour. Volunteers at Tower Grove House continued to conduct tours of the house for youth, adults and families, operate the Tea Room and provide enlightened tours of this marvelous period historical site. They also began to catalog the historical collections of the Garden.

Emphasis on educational quality was illustrated by the continued training of ECO-ACT students, the "Conservation in Action" program for youth, the implementation of the "Earth Education" program, training student interns, and teaching students at many grade levels about the ecology and living history of the Ozark area.

At the Arboretum, the Prairie Restoration Project allowed numerous visitors to observe the natural beauty of this site at all seasons, to understand the ecological significance of prairies, and to see firsthand the numerous wildflowers and grasses once so plentiful on the prairies of this region.

Shaw Arboretum at Gray Summit recorded 38,588 visitors in 1985 and became even more popular in its educational efforts with over 8,800 people participating in programs, tours and classes. Visitors came to cross country ski, to watch birds, to identify wildflowers, to observe the prairie, to attend the variety of education programs, or to simply enjoy the peace and tranquility of the natural world.

Kenneth D. Laser

Dr. Kenneth D. Laser
Chairman of Education

Display

THE 1985 SEASON was an eventful one for the Garden and the horticulture department. Among the several new projects started during the year, the largest was the completion of the Rhododendron-Azalea Garden. This garden features tried and proven rhododendron and azalea species and cultivars, both members of the genus *Rhododendron*. The garden, in its three sections, displays different groups of these plants. The first section, nearest the tram shelter, features the deciduous azaleas, particularly those bred in Exbury, England. The colors range from white and pastel pinks to hot orange and red with an added bonus of a sweet honeysuckle-like fragrance. The middle section features the evergreen azaleas, again ranging from white to pink and lavender. The third section features the rhododendrons, with their leathery, evergreen foliage and lavender and pink flowers. Throughout this garden is a collection of deciduous magnolias, and the area will be underplanted with drifts of ferns, epimediums, and Virginia bluebells. This exciting new garden, made possible through the generosity of Lucy and Stanley Lopata and a bequest from the estate of Eyvonne Huch, flanks the path from the Ridgway Center to the Mediterranean House and serves as a spectacular entryway to the rest of the Garden.

Another new garden feature which was begun in 1985 was the East Bulb Garden. This area comprises the space between the Gladney Rose Garden arbor and the Hosta Garden. This magnificent addition will be in bloom with one kind of bulb after another from spring through fall. It features an encyclopedic collection of bulbs for St. Louis, including the earliest crocuses, narcissuses, species tulips, alliums, and true lilies. In the fall you can see surprise lilies and colchicum. The garden, as a whole, continues to be refined through the addition of many interesting new ornamental plants. The new bulb garden was made possible by a gift from Jane Jacobs in memory of her parents.

Also, in memory of James A. Corrigan, Sr., Mrs. Corrigan and her children made a marvelous contribution to improve the area in front of the Museum Building. The work included removing the old asphalt, installing a variety of plantings and resetting the brickwork.

The Garden was also the recipient of a $25,000 grant through the Institute for Museum Services for conservation of our tree collection. These funds will allow for the development of a comprehensive listing of the Garden's trees, focusing particularly on the more historic plants. Funds from the grant will also allow the undertaking of certain preservation

activities, such as special disease and fertilizer injections, as well as installing a series of lightning protection systems.

Flower displays have continued to evolve into exciting experiences for the Garden's visitors. The fall flower display featured chrysanthemums, flowering cabbages, and fall color amidst a harvest scene, including a log cabin. The holiday display had a south-of-the-border flair with a California mission facade and many beautiful poinsettias, as well as kalanchoes, Reiger begonias, and living wreaths of hoya. The future promises even better displays and continued fine-tuning throughout the living collections.

The plant records section of the horticulture department was reorganized and expanded in the summer and in the autumn of 1985 to include five volunteers, a plant recorder, and plant taxonomist. In addition to the daily responsibilities of identifying, labeling, and recording plants cultivated at the Missouri Botanical Garden, we have been revising the computer programs used for keeping records, researching waterlilies cultivated here, mapping the Climatron, and surveying the large trees on the grounds. Beyond continuing or completing these projects, we expect in 1986 to finish transferring all plant records from index cards to the computer, an effort that will greatly enhance our ability to provide information on the Missouri Botanical Garden's plants.

Among the several new projects started during the year, the largest was the completion of the Rhododenron-Azalea Garden.

Alan P Godlewski

Alan P. Godlewski
Chairman of Horticulture

Community

THE GARDEN ENJOYED magnificent support this past year from both Members and the general public. Overall Garden attendance continued its upward trend, and membership reached a record of more than 16,000 families. Attendance at Members' events was more than 10,000 people.

Focusing on the theme, "A Garden For All Seasons," there was a full year of activities staged for the enjoyment of both the general public and Garden Members. In an effort to entertain and to educate, the Garden provided a series of major exhibits featuring a variety of artists and media. A highlight of the year was the retrospective exhibition "A Painter Named Smith," which showcased the works of Wallace Herndon Smith. The Garden's participation in the St. Louis Arts Festival brought an exciting display of botanically inspired ceramics.

Even the excitement and success of this past year can hardly match the anticipation for the year to come.

Exhibits also focused attention on the Garden's research in the tropics through a display of National Geographic Society rainforest photographs, and our concern for plant and animal conservation through the World Wildlife Fund's display.

For the second year the Members' Board provided an exciting holiday tree exhibit. Several board members worked with a panel of representatives from the arts community to select six local artists to design their versions of a holiday tree. The exhibit attracted many visitors and much interest.

Exhibits were only part of the excitement offered at the Missouri Botanical Garden during 1985. In an effort to attract visitors from a broad base, a wide variety of special events were held. "The Sweetheart Special," on Valentine's Day attracted people of all ages. The appearance of poet Nikki Giovanni was a sell-out. While new events are always exciting, tradition is an important part of the Garden. The Japanese Festival, on its 10th anniversary, attracted more than 60,000 persons. The summer evening Music Fest concerts continued to be popular, as did the Children's Film Fest. An old tradition was reinstated this past year with the first public appearance of the Veiled Prophet Queen, Jennifer Knight, at Tower Grove House.

Monthly Members' Days were very popular with offerings ranging from garden tours, to bird walks, to an evening stroll through the rose gardens. The Members' Board not only planned monthly events, but staged a major event for the public. In October, a spectacular 25th Birthday Party for the Climatron was given in a grand style. There were balloons, clowns, birthday cake, kids, and a ceremony to make it official for the 4,000 visitors who attended.

The Members' Board also worked hard to gain new Members for the Garden and to make those who visited feel welcome. The Membership Services Committee continued its efforts to bring in new Members and to supply answers and information to those who came to the Garden. Hosts and hostesses from the board welcomed Members, who came in record numbers to the previews of the flower shows.

This past year was marked by an increased effort to communicate with Garden Members and to assess

the interests and desires of our diverse membership. The *Bulletin,* the bi-monthly magazine for Members, was redesigned, and an important membership survey gave us a base of information about Members' interests.

Garden Members and the public supported us financially as well, by contributing to our campaign to sell "deeds" to restore the Climatron panes. While this major fund raising task has just begun, the response. has been gratifying. The initial success and strong base of community support has shown what an important place the Climatron holds in St. Louis. Many Members also contributed to our campaign for the renovation of the John S. Lehmann Building, demonstrating the widespread interest in our scientific program.

During 1985, the Members' Board worked hard to complete its first long range plan, giving Members the opportunity to look ahead to future activities and events. It was a good year. Garden membership increased and the Members' Board was increasingly involved. The public displayed unprecedented interest in the Garden. But even the excitement and success of this past year can hardly match the anticipation for the year to come.

Pat Rich

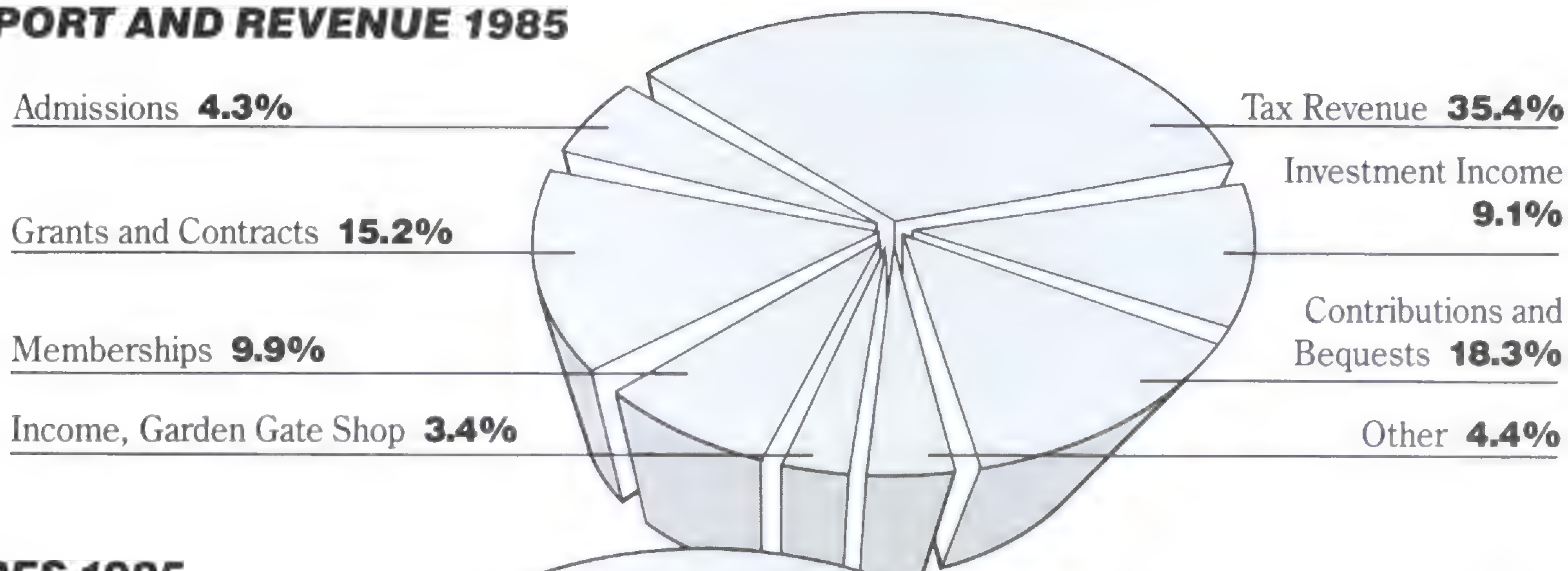
Patricia E. Rich
Director of Planning and Development

FINANCIAL INFORMATION

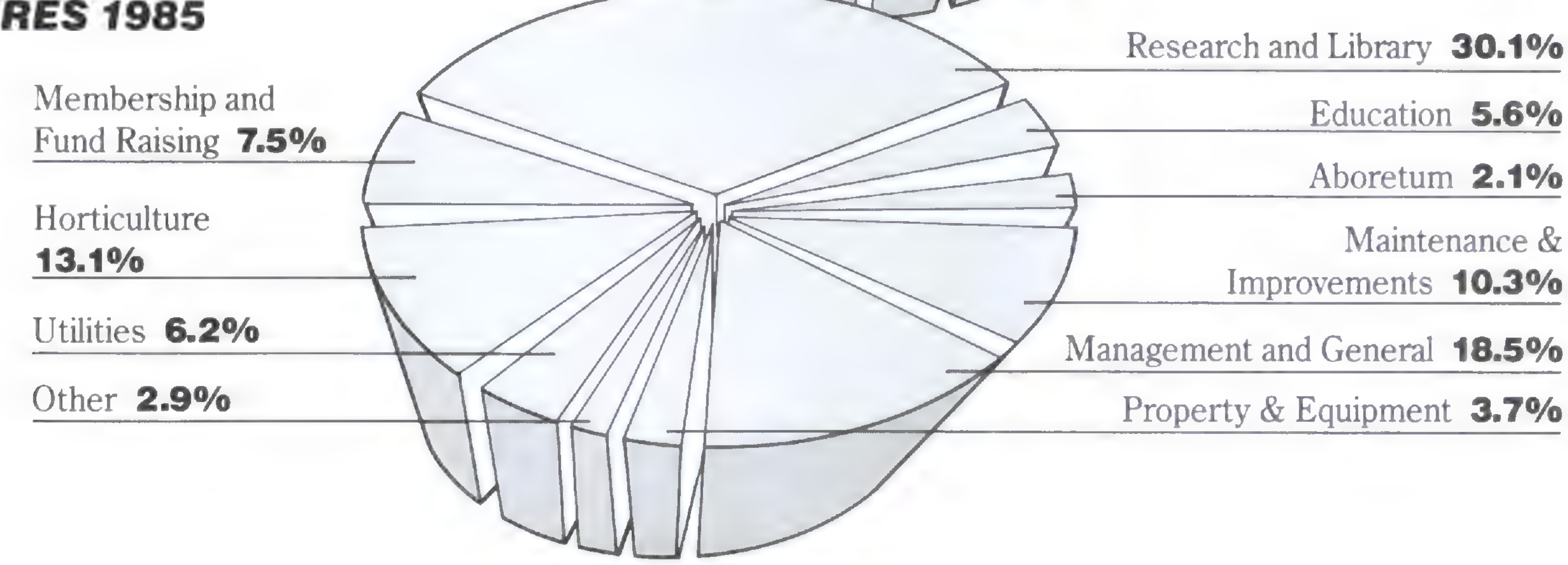
Statements of Support and Revenue, Expenses and Changes in Fund Balances for Operating Funds. (Unaudited)

PUBLIC SUPPORT AND REVENUE	*Year Ended December 31*	
Public support—	**1985**	1984
Services provided for Botanical Garden Subdistrict	$ 2,783,636	$ 2,415,531
Contributions and bequests	1,435,363	1,227,633
Memberships	776,935	613,918
Total public support	**$ 4,995,934**	$ 4,257,082
Revenue—		
Admissions	$ 334,570	$ 304,799
Grants and contracts	1,191,342	1,242,957
Net income from Garden Gate Shop	264,870	248,615
Investment income, net	718,254	775,409
Other	348,407	288,272
Total revenue	**$ 2,857,443**	$ 2,860,052
Total support and revenue	**$ 7,853,377**	$ 7,117,134
EXPENSES		
Program services—		
Horticulture	$ 991,914	$ 901,997
Research and library	2,288,310	1,941,788
Education	424,688	320,903
Arboretum	155,963	124,263
Maintenance and improvements	780,141	651,715
Utilities	470,963	458,396
Security	180,450	154,865
Tower Grove House	44,518	37,026
Total program services	**$ 5,336,947**	$ 4,590,953
Supporting services—		
Management and general	$ 1,407,558	$ 1,340,704
Membership department	384,659	377,003
Fund raising	185,119	125,517
Total supporting services	**$ 1,977,336**	$ 1,843,224
Total expenses	**$ 7,314,283**	$ 6,434,177
EXCESS OF PUBLIC SUPPORT AND REVENUE OVER EXPENSES	**$ 539,094**	$ 682,957
OTHER CHANGES IN FUND BALANCES—(DECREASE):		
Property and equipment transfers	(279,466)	(229,294)
Transfer of funds	(163,687)	(333,676)
FUND BALANCES—BEGINNING OF YEAR	**(140,149)**	(260,136)
FUND BALANCES—END OF YEAR	**$ (44,208)**	$ (140,149)

PUBLIC SUPPORT AND REVENUE 1985



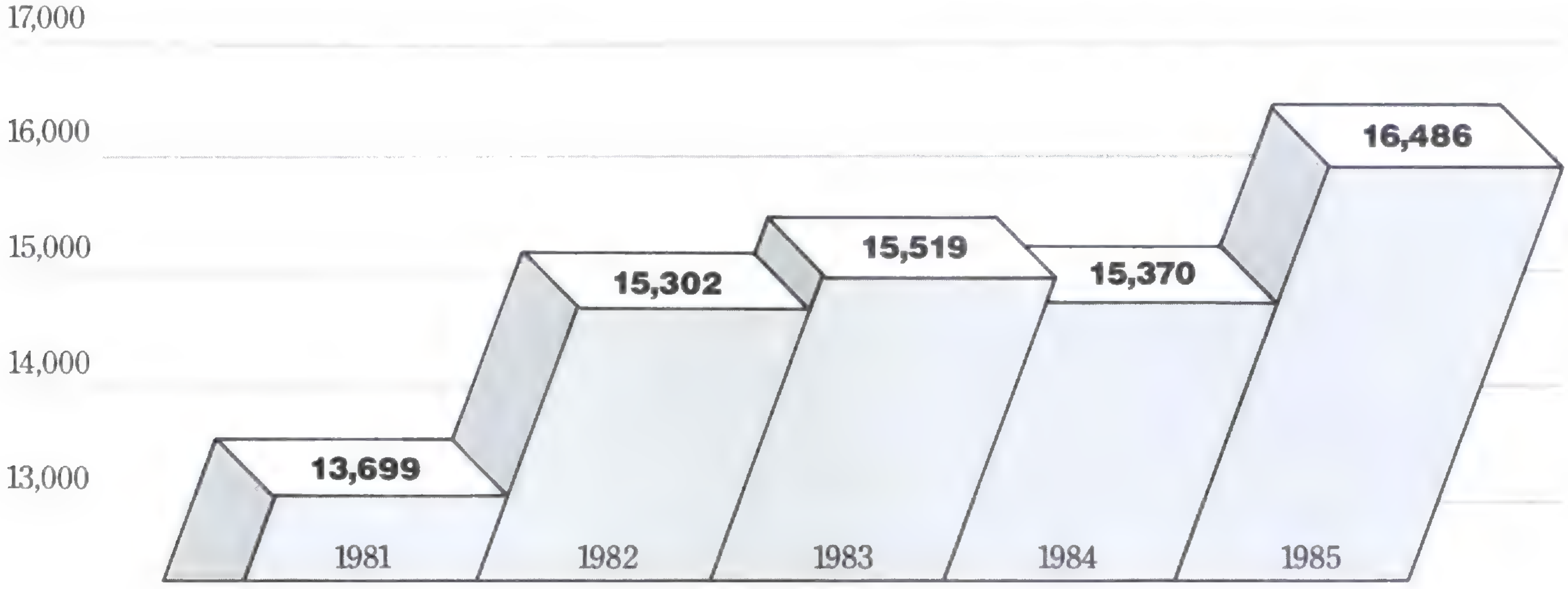
EXPENDITURES 1985



FACTS & FIGURES 1985

Total attendance (ticket counter)	**496,004**
Students in education programs	**79,100**
Active volunteers	**484**
Volunteer hours	**49,916**
Total herbarium specimens added	**79,294**
Horticultural accessions	**1,553**

TOTAL PAID MEMBERSHIP 1981–1985



OTHER FINANCIAL INFORMATION

	1985	
FUND BALANCES (DEFICIT):	*Beginning of year*	*End of year*
Operating Funds:		
Unrestricted	$ (140,149)	$ (44,208)
Restricted	—	—
Endowment and Similar Funds:		
Henry Shaw Trust	4,632,481	4,890,987
Quasi	4,109,212	4,612,653
Other	504,745	515,188
Land, Building and Equipment Fund	19,440,302	19,357,191
TOTALS	**$28,546,591**	**$29,331,811**

1985 GRANT AWARDS

	Activity	*Amount*
Association of Science and Technology Centers/ General Electric Foundation	*Education*	$ 1,000
CAMELOT–Special Projects Fund of the Arts and Education Council of Greater St. Louis	*Education*	$ 8,000
Chautauqua/National Science Teachers Association	*Education*	$ 17,560
Holt, Rinehart & Winston	*Education*	$ 1,200
Institute of Museum Services	*General Operating*	$ 75,000
Institute of Museum Services	*Collections/Conservation*	$ 25,000
W. Alton Jones Foundation (3 years)	*Research*	$318,000
Joyce Foundation	*Education*	$ 65,304
Kresge Foundation (Lehmann Building)	*Capital*	$350,000
Andrew W. Mellon Foundation (3 years)	*Research*	$330,000
Mercantile Library Association	*Library*	$ 2,000
Missouri Arts Council	*Special Projects*	$ 38,000
Missouri Prairie Foundation	*Education*	$ 4,000
Monsanto Company	*Research*	$ 18,000
National Geographic Society	*Research*	$ 29,283
National Museum Act	*Research*	$ 15,000
National Science Foundation (several projects)	*Research*	$735,670
Jessie Smith Noyes Foundation	*Research*	$ 46,411
Pioneer Hi-Bred International	*Research*	$ 20,000
Pitzman Fund	*Education*	$ 7,000
R. J. Reynolds Industries, Inc. (2 years)	*Research*	$ 33,224
St. Louis Community Foundation	*Education*	$ 5,656
St. Louis Schools Partnership Program	*Education*	$ 77,404
Service Bureau Foundation	*Management/General*	$ 2,000
The Seven-Up Company	*Japanese Festival*	$ 76,000
Norman J. Stupp Foundation	*Education*	$ 15,000
World Wildlife Fund	*Research*	$ 2,000

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The Missouri Botanical Garden expresses its gratitude to the following individuals and organizations for their cumulative gifts 1950-1985:

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As of December 31, 1985

**Indicates part-time employees.*

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Carol Davit*
Joyce Davit*
William Davit
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Dana Hines
Sarah Krewson
Donna MacBride
Linda Raming
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Peter Hoch, Ph.D.
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Janice Wilson
Elsa Zardini, Ph.D.

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Sarah Coppersmith
Elisabeth Cornelison
Karla Goodman
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Glenn Kopp
Gregory Krone
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Denise Reeves
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Marilyn Svejkosky, *Gift Sales Supervisor*

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Adrian Bourisaw
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Gerald Cherry
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Shirley Murphy
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Lee Fox
Deborah Graham
BobbiJo Jarvis
Sharon Little
Jana Scharnhorst

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Marshall Crosby, Ph.D., *Division Director*

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Thomas B. Croat, Ph.D.
W. G. D'Arcy, Ph.D.
Gerrit Davidse, Ph.D.
Calaway H. Dodson, Ph.D.
Laurence J. Dorr, Ph.D.

continued

STAFF *continued*

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Alwyn H. Gentry, Ph.D.
Peter Goldblatt, Ph.D.
Michael H. Grayum, Ph.D.
William A. Haber, Ph.D.
Barry E. Hammel, Ph.D.
Michael J. Huft, Ph.D.
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Jonathan Lovett
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Victor Mühlenbach, M.D., Emeritus
David A. Neill, Ph.D.
David Smith
James Solomon, Ph.D.
Warren Douglas Stevens, Ph.D.
Julian A. Steyermark, Ph.D.
Duncan W. Thomas, Ph.D.
Henk van der Werff, Ph.D.
James L. Zarucchi, Ph.D.

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Department Manager
Marion Albright
Cheryl R. Bauer
Mary Bouie*
Alan Brant
Ana Brzyski*
Aileen Bunton
Mary Coates
Jenny Davidse
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Heidi Threnn
Carla Vitez
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Charles Anderson*
Theresa Broleman*
Bonnie Bruenger*
Mary Brunette*
Marie Cook
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Gerard Hannibal
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Ann King*
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Judy Luebbert
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Sandra Richey*
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George Vaughan
William Welch

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Norma Silber, *Supervisor*
Violet Dettmann*
Madeline Donaldson*
Margaret Glenn
Holly Hanewinkel*
Lucille Kraus*
Fern Truscheit*

STAFF—LENGTH OF SERVICE

20 OR MORE YEARS
Leonardo Mourré

15-19 YEARS
Paul Brockmann
Thomas B. Croat
Marshall Crosby
W. G. D'Arcy
William Davit
Margaret Glenn
Marilyn Svejkosky
Stephen Wolff

10-14 YEARS
Marion Albright
Walter Behrendt
Marie Cook
Barbara Craighead
Gerrit Davidse
Alwyn H. Gentry
Peter Goldblatt
Brian LeDoux
Ronald Liesner
Cheryl Mill
Charles Orner
Peter Raven
William Wagner
Walter Ward
Brenda Ward

5-9 YEARS
John Behrer
David Bockenfeld
Mary Bouie
Aileen Bunton
Jo Ann Collins
Stephanie Diestelkamp
Julie Gentry
Alan Godlewski
James Henrich
Martha Hinck
Peter Hoch
Charles Hooker
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Denise Reeves
Warren Douglas Stevens
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M. Jessica Ventimiglia
Darman Williams
Margaret Zonia

Volunteers Who Have Worked 100 Hours or More—1985

Margaret Abbott
Library
Peggy Abel
Guides
Rochonne Abrams
Library
Marie Ahearn
Education Office
Frank Arnoldy
Master Gardener/Answer Service
Celina Aubuchon
Botany
Lester Aubuchon
Climatron
Dorothy Bachar
Tower Grove House
Albert Baeyen
Greenhouse
Charlotte Baeyen
Greenhouse
Margaret Baldwin
Gate Shop
Bill Bauer
Botany
Inez Bender
Gate Shop
David Bennet
Library/Botany
Bill Betz
Botany
Billie Beyer
Master Gardener/Answer Service
Adrienne Biesterfeldt
Guides/Climatron/Woodland Garden
Lillian Biggs
Answer Service
Virginia Blume
Tower Grove House
Dorothy Blumenthal
Maintenance Office
June Booth
Volunteer Office
Dale Boring
Greenhouse
Henry Bowman
Greenhouse/Rose Garden
Muriel Braeutigam
Japanese Garden/Botany
John Brown
Master Gardener/Answer Service
Robert Buck
Japanese Garden/Rose Garden/ Library
Herb Bueltmann
Library
Bertha Burton
Botany
Dorothy Bushyhead
Guides
Zelma Busse
Tower Grove House
Eugene Catalano
Greenhouse
Mabel Chouinard
Tower Grove House
Art Christ
Arboretum
Chris Christensen
Greenhouse
Alice Coleman
Gate Shop
Vernelle Cone
Master Gardener/Answer Service
Sr. Rosemary Connell
Master Gardener/Display Garden
Barbara Cook
Guides
Mike Costello
Rose Garden
Patricia Crowe
Tower Grove House
Kathy Cunningham
Plant Shop
Diane Cutaia
Botany
Dolly Darigo
Botany
Sally Davidson
Guides
Nan Day
Guides/Volunteer Instructor
Ruth DeFabio
Gate Shop
Frank Delonjay
Plant Shop
Edna Dependahl
Guides/Climatron
Eugene Deutsch
Tower Grove House
Silas Dietz
Answer Service/Greenhouse
Rienette Diller
Master Gardener
Mark Distenbach
Knolls Area
Adam Donges
Arboretum
Ellen Dubinsky
Members' Board
Albert Edmondson
Japanese Garden/Climatron
Mary Ely
Guides/Volunteer Instructor
Frank Enger
Display Garden/Greenhouse
Peggy Erickson
Volunteer Instructor
Art Eschrich
Botany/Greenhouse
Virginia Eschrich
Tower Grove House
Dorothy Evers
Gate Shop
Marie Ewers
Gate Shop
Son Fesler
Answer Service
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Arboretum
Elizabeth Garrett
Gate Shop
Irene Geer
Tower Grove House
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Botany
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Master Gardener/Answer Service
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Climatron
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Plant Shop
Charla Gray
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Josephine Griffin
Plant Shop
Marie Groener
Arboretum
Rena Gross
Gate Shop
Elenor Gruenewald
Plant Shop
Florence Guth
Director's Office
Frank Hanchett
Master Gardener/Answer Service

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Gate Shop

Margaret Hartung
Botany/Herbarium

George Hasegawa
Members' Board

Lorraine Hatscher
Gate Shop

Imogene Hazzard
Botany/Herbarium

Lynn Hepler
Master Gardener

Ethel Herr
Development Office

Marian Herr
Development Office

Helen Hilliker
Display Garden/Greenhouse

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Gate Shop

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Master Gardener

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Botany

Frank Holdener
Answer Service

Charmaine Hurford
Development

Charmaine Hutchings
Answer Service

Gene Jarvis
Climatron

Jack Jennings
Members' Board

Doris Johnston
Answer Service

Ellen Jones
Tower Grove House Historical Committee/Members' Board

Ilse Jordan
Greenhouse

Gene Kessler
Answer Service

Roland Ketts
Botany

Sharon Key
Greenhouse

Renate Kheim
Botany

Ahn Kyoungil Kim
Botany/Rose Garden

Merle Kind
Tower Grove House

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Guides

Pauline Kittlaus
Library Bindery/Greenhouse

Mim Kittner
Chairman Membership Information & Services/Members' Board

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Volunteer Office

Rose Klimkiewicz
Rose Garden

Joyce Knobbe
Volunteer Office

Helen Kuehling
Guides/Volunteer Instructor

Helen Kuhn
Gate Shop

Alice Lamb
Display Garden/Plant Shop

Joy Last
Tower Grove House

Clifford Lecoutour
Answer Service

Patricia Lehleitner
Director's Office

Ken Lindemann
Master Gardener/Answer Service

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Library

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Floral Display

Katherine Lupo
Guides

Paul McClinton
Plant Records

Carol McCloskey
Answer Service/Tower Grove House

Ruth McClure
Greenhouse/Gate Shop

Laverda McDonald
Plant Shop

Marshall Magner
Master Gardener/Answer Service

Nadine Mahe
Guides/Herb Garden

Eleanora Markus
Tower Grove House

Jean Matlock
Development Office

Bill Mayer
Rose Garden

Joe Meis
Answer Service

Nell Menke
Arboretum

Jean Milligan
Library

Bea Mosher
Woodland Garden/Climatron

Clara Moult
Gate Shop

Joan Murphy
Development

Rosemary Murphy
Answer Service

Lorraine Myers
Volunteer Office

Betty Nellums
Arboretum

Sue Oertli
President, Members' Board

Ruth Olson
Gate Shop

Margaret Pape
Gate Shop

Gert Pappert
Plant Shop/Volunteer Office

Carl Parres
Plant Shop

Mary Ann Pelot
Master Gardener/Answer Service

Bea Perrin
Guides/Volunteer Instructor

Betty Perry
Master Gardener/Answer Service/Greenhouse

Phyllis Phelps
Master Gardener/Answer Service

Bill Phillips
Botany/Herbarium

Mary Jean Poetz
Plant Shop

Margaret Point
Education Office

Kaye Quentin
Climatron

Audrey Rebsamen
Tower Grove House

Alma Reitz
Answer Service

Frances Resnick
Tower Grove House

Clifford Rhoads
Answer Service

Mary Lynn Ricketts
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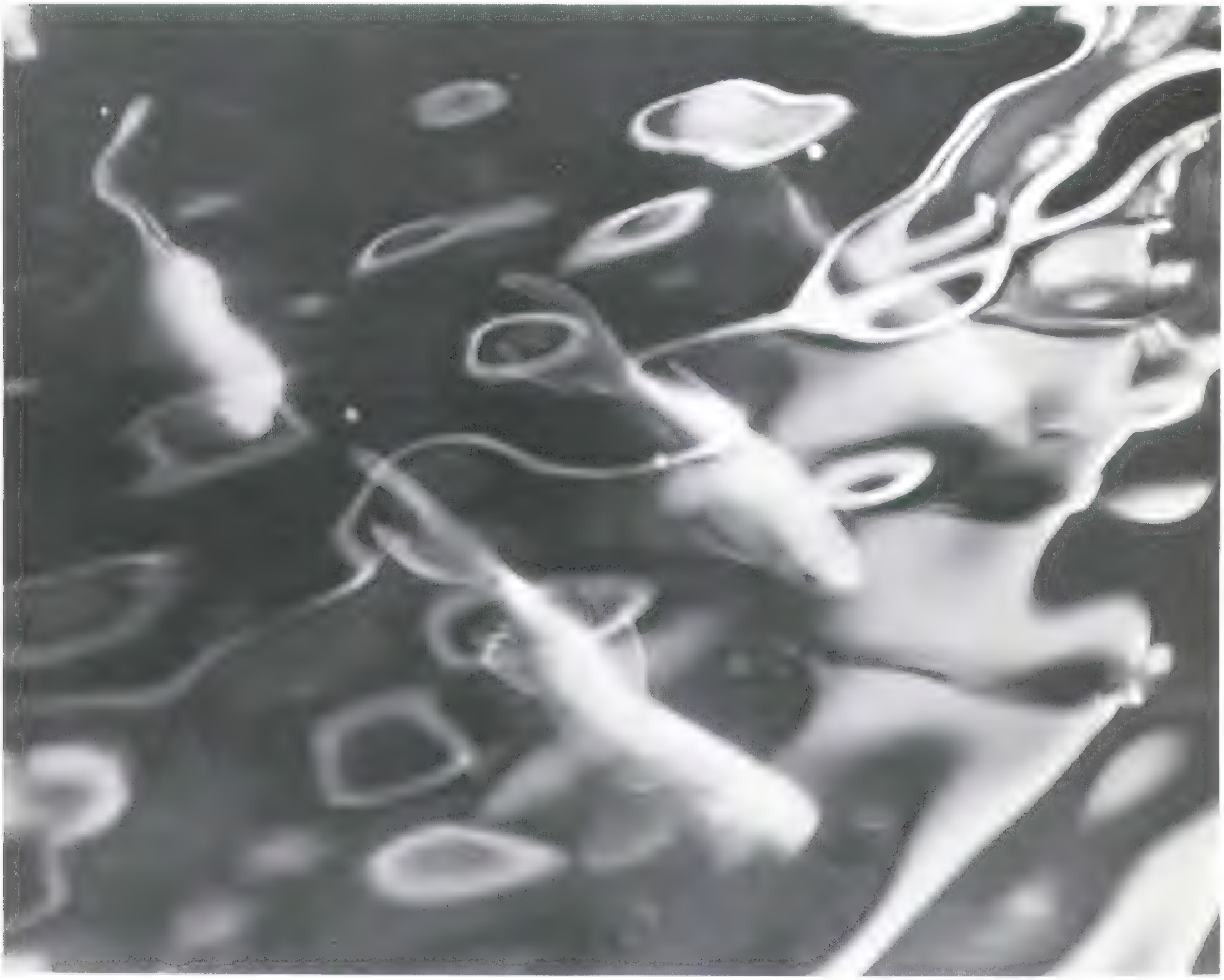

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BULLETIN

VOLUME LXXIV, NUMBER 4 MAY-JUNE 1986

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The BULLETIN (ISSN 0026-6507) is published bi-monthly except semi-monthly in May by the Missouri Botanical Garden, 4344 Shaw Boulevard, St. Louis, MO 63110. Second class postage paid at St. Louis, MO. Subscription price $12.00 per year. $15.00 foreign.

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Postmaster: send address changes to Lee B. Fox, editor, BULLETIN, P.O. Box 299, St. Louis, MO 63166.

Comment

Japanese Festival Set for August 23-September 1

Earlier this year, the Garden was forced to cancel the Japanese Festival because of lack of funding. In the interim, a new sponsor has stepped forward to continue the tradition, and I am very pleased to announce that the 11th Japanese Festival has been rescheduled for August 23 through September 1, 1986.

Fannie May Candies Foundation has agreed to be the exclusive sponsor of the Festival, and we are proud to be associated with such a fine family-oriented organization.

Both the Garden and Fannie May are committed to bringing back the same high quality experience that our visitors have come to expect. So mark your calendars now and tell your friends and neighbors.

The Festival will run a full ten days this year, including Labor Day. Many of the favorite performers such as the Taiko Dojo drummers will be back. There will also be new exhibits and entertainment, focusing on the theme "Japan: Yesterday and Today."

We are indebted to Fannie May Candies Foundation for making it possible to continue a long-standing tradition in our community. We are also grateful to The Seven-Up Company for their past support.

Between now and the Festival, however, there will be no lack of activities to entertain and enlighten Garden visitors. The natural wonders of the Garden will be on full display the next two months. May will showcase the new Azalea/Rhododendron Garden, and June is the first peak period for our two, award-winning rose gardens—the Anne L. Lehmann Rose Garden and the Frank Y. and Katherine Graves Gladney Rose Garden.

On Friday, May 23, we begin our extended hours with the Summer Celebration, a three-day salute to the season. I encourage you to take advantage of the extended Garden hours (9 am to 8 pm, every day). Evening at the Garden is one of the most delightful times for a contemplative stroll.

Peter H. Raven

Greensfelder Award Presented to Roger Tory Peterson

Mr. Biggs (l.) and Mr. Peterson

Roger Tory Peterson, America's best-known artist, naturalist and explorer, was presented with the Missouri Botanical Garden's Greensfelder Award on Thursday, March 6.

The Greensfelder Award was established in 1980 in memory of Albert P. and Blanche Y. Greensfelder to honor individuals who have made substantial contributions to promote a better environment through conservation and urban improvements. Peterson is well-known for his classic manual "A Field Guide to the Birds" first published in 1934. His appearance and lecture at the Garden commemorated the opening of the "Birds in Art" exhibit.

Other honors Peterson has received include the Audubon Medal, Smithsonian Medal, Linnaeus Gold Medal, the Presidential Medal of Freedom (the highest civilian honor in the United States), and more than 50 other awards for conservation, education, literature, natural history, ornithology, science and public service.

The presentation was made by John H. Biggs, president of the Garden's Board of Trustees.

HENRY SHAW ACADEMY

For Kids Ages 7-18

A NEW YOUTH PROGRAM will soon be available at the Garden for children in the St. Louis area interested in exploring the world of science and natural history. The **Henry Shaw Academy** will offer students, ages seven to 18, many exciting and unusual ways to investigate a broad range of science topics.

As Academy members, students can select among a variety of courses and activities throughout the year that will deepen their understanding of the natural world and will help them develop their skills in observation and experimentation. The classroom will reach to all corners of the Garden as students investigate how living things grow and adapt to different environments. Students will have opportunities to meet and learn from botanists and horticulturists and observe what goes on in the Herbarium and greenhouses. The Academy classroom will extend beyond the walls of the Garden to explore neighboring garden plots and parks, prairies, caves and woodlands, riverbanks and streams.

Over the past year, Garden staff have been working with other area science educators to develop this innovative program that offers students a practical, hands-on approach to science. Courses and activities are designed to build on the science taught in area schools and to meet new state requirements for skills competency in the sciences.

The Henry Shaw Academy will officially open this June. Students joining the Academy will receive a membership card, newsletters, invitations to special events and reduced fees for classes. Members who complete their first class will receive an official Academy T-shirt. Additional gifts will be awarded as members complete other levels of participation and achievement.

All children who participate in the 1986 summer program will become special Charter Members of the Academy and receive a free membership for one year. Students joining the Academy after the summer will pay a membership fee of $15. Full details of the 1986 summer programs and transportation schedule will be mailed to Garden Members in the coming weeks.

1986 SUMMER PROGRAM

Ages 7 - 10

The World Around Me

This class will encourage children to explore parts of our world and discover how plants and animals live together in different environments. The first week will examine woodland, prairie and pond communities. The second week will focus on the communities of jungle, ocean and desert. Children will plant seeds, watch the growth of seedlings and discover how changing conditions affect their growth.

Week I—June 23-27, 9 a.m.-3 p.m.
Week II—July 7-11, 9 a.m.-3 p.m.
Fee: $50 for one week
$75 for both weeks

Participants may enroll for one week or two week sessions. Field trips to the Arboretum, St. Louis Zoo and St. Louis Science Center are included and transportation is provided by the Garden. Participants need to bring a sack lunch each day.

Feather, Fur and Fin

In this class, we will explore forest, field and stream to help us understand where the different animals live and how they are well-adapted to meet their needs of life. One day session—June 17, 10 a.m.-3 p.m., Shaw Arboretum. $11, includes bus transportation.

Water Cycling

We will learn what powers the water cycle and how the earth's water supply is purified through this process. One day session—June 18, 10 a.m.-3 p.m., Shaw Arboretum. $11, includes bus transportation.

Forest Life

We will explore the variety of forest communities that exist at the Arboretum as we search for some of the fascinating plants and animals that find their home in the woods. One day session—June 19, 10 a.m.-3 p.m., Shaw Arboretum. $11, includes bus transportation.

Ages 10 - 13

Planet Earth

This class is designed to deepen a child's understanding and sense of wonder about our planet and how it works. Each day we will explore a new aspect of how life forms, develops and adapts to its environment. In Week I we will investigate the planet's "building blocks"—sun, air, water, earth—to discover how these elements shape life patterns and cycles. In Week II we will explore the interaction of plants and animals in different environments. Stu-

continued on next page

Henry Shaw Academy

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dents will build and maintain a "pond terrarium" and will work as botanists to mount and label a plant collection.
Week I—July 14-18, 9 a.m.-3 p.m.
Week II—July 21-25, 9 a.m.-3 p.m.
Fee: $50 for one week
$75 for both weeks

Participants may enroll for one week or two week sessions. Field trips to the Arboretum, St. Louis Zoo and St. Louis Science Center are included and transportation is provided by the Garden. Participants need to bring a sack lunch each day.

Earthkeeper

Join us at the Earthkeeper Training Center to begin the exciting task of learning how all life is tied together. As an Earthkeeper apprentice, you will earn four keys as you complete certain tasks over the summer months. Participants will earn their first two keys during a three day, two night experience at Shaw Arboretum. The last two keys will be earned at home and will be presented at a special ceremony at the Missouri Botanical Garden in September. One session, June 24, 10 a.m.-June 26, 1 p.m., Shaw Arboretum. $50, includes food and transportation. Participants provide their own clothing and overnight gear.

Ages 13-16

Ozark Waterways

Hike and canoe along one of the beautiful rivers of the Ozarks, Bryant Creek. Learn about the unique plants and animals living in the Ozarks by hiking through forests of the river valley exploring caves and by fishing and seining the river. One session, July 8, 10 a.m.-July 12, 3 p.m. $100, includes food, transportation, leadership, canoes and group equipment.

Participants provide their own clothing and overnight gear. Bring a lunch for the first day.

LIBRARY'S SHOENBERG CONSERVATION CENTER VALUABLE GARDEN ASSET

A generous donation by the Shoenberg family has made possible significant improvements in the Garden library's book and paper conservation center, renamed in their honor. This unique facility was first opened in 1969 and is one of only a few in the United States devoted to preserving books and paper.

The recent contribution by the Shoenberg Foundation will allow the Center to be refurbished and expanded. The Shoenberg family has long been a strong supporter of the Garden, as evidenced by the two Shoenberg Fountains, one at each end of the Garden, and the Shoenberg Auditorium.

The Garden's library has one of the world's finest collections of botanical literature, spanning more than 500 years. The nucleus of the collection was acquired in 1859 when Henry Shaw commissioned Dr. George Engelmann to purchase books in Europe. The library has been enhanced through the years by purchases, gifts and exchanges with other botanical institutions.

The library's 400,000 book and non-book items include materials on horticulture, economic and medical botany, botanical history, and plant ecology. It also contains 4,000 rare books. Many of these books are at least a century old and have deteriorated. Organic materials in books make them subject to insect and fungal breakdown as well as wear from normal usage.

There are several reasons for maintaining our own conservation center at the Garden. Not only do we want to make sure that the book collection remains physically preserved, but also that the books are functional and serviceable to the library's patrons. Unlike some other sciences where the most current publication is the most important, original descriptions and documentation of plants is vital to the botanist when he or she is attempting to identify a newly collected specimen or perform other research. It is also important to protect the monetary and historical value of the collection.

Of course our rare and valuable books deserve the utmost care and attention. But many of the research books collected here are difficult to replace even though they may not be classified technically as rare. Even if a replacement book is available, the price may make it more desirable to repair the current one than to purchase a new one. And sending books out to other binderies for repair can be risky—the book may become lost or damaged in the mail; it may be stolen or vandalized; and the Garden would lose control over the way the book is treated.

Susan Finley, the Center's supervisor, has worked in the facility since 1981, when she was hired in a joint program with the St. Louis Mercantile Library Association. She divides her time equally between the Garden and the Association.

Susan studied the art of book binding and repair through private instruction and workshops in Pittsburgh and at the Garden. She has a staff of two part-time employees and numerous volunteers to help. This staff is trained in such topics as awareness of book materials, rebinding, restoration and the making of archival containers.

All work at the Center is performed by hand. In fact, the only electrically operated machines used are hot stampers for label making, but even the type for them is set by hand. The techniques they use in hand bookbinding are similar to those used in the 17th Century.

The recent major contribution to the Center from the Shoenberg family will guarantee the success of the program and preserve the many rare and beautiful books for use by future generations of scholars.

Susan Finley, Supervisor

Gardening In St. Louis

Azaleas and Rhododendrons

Lush hillsides of head-high Rhododendron and nearly-gaudy banks of brightly colored Azaleas have inspired Midwestern gardeners to add them to their home landscapes with often less-than-satisfactory results. The answer to scrawny or sickly plants is not necessarily to yank them out but to take a more educated look at this group.

Rhododendrons and azaleas are ericaceous plants cultivated in all parts of the world containing over 800 species of evergreen, semi-evergreen, or deciduous shrubs, 30 of which are native to North America. Though the nursery and landscape industry has kept them separate, there is little botanical difference between the two. Carl Linnaeus started all this confusion when he classified two evergreen specimens as *Azaleas* in his *Species Plantarum* in 1753. Later taxonomists found deciduous azaleas and they were then all classified under genus *Rhododendron*.

Azaleas are generally considered deciduous with funnelform flowers with five stamens; while rhododendrons are generally larger evergreen plants and have campanulate (bell-shaped) flowers with ten or more stamens. However exceptions are common to both.

In the United States, these plants thrive in fairly mild, humid climates, as found in the southeastern Gulf States to the Appalachian Mountain chain. Some sources say Rhododendrons are extremely difficult to grow in the central U.S. where neither soil, climate, or moisture are conducive to growth and survival. Soil and climate may be unfavorable for many of the "cultivated" forms, but hybridizing and cultivation are producing literally hundreds of varieties that are more adaptable.

PLANT CHOICES

The main hybrid groups best grown in this area include azaleas native to the United States ("Glenn Dale Hybrids," "Exbury Hybrids," *R. viscosum, R. vaseyi,* and *R. calendulaceum*); cultivated azaleas which are generally evergreen ("South Indian Hybrids," "Gable Hybrids," and "Kurume Hybrids"); and 'true' Rhododendrons. One major, beautiful exception to this rule is *R. mucronulatum*, which blooms in March each year on a deciduous plant. Many of the more showy and hardy varieties are included in the new Azalea-Rhododendron Garden located just south of the Ridgway Building from the Tram Shelter to the Climatron.

NATIVE AZALEAS

Glenn Dale Hybrids were developed by Mr. B. Y. Morrison, a plant breeder and the first director of the National Arboretum in Washington, D.C. Mr. Morrison selected over 400 varieties at the Plant Introduction Station in Glenn Dale, Maryland. This is considered the most hardy group for the St. Louis area. Bloom dates and colors vary because of a variety of parentage but generally flowering is between mid-April and mid-June. They are quite popular since flowers may be up to 4½ inches in diameter.

Developed in England at the estate of Lionel de Rothschild are the **Exbury Hybrids**. These plants generally have many flowers in the cluster and are hardy in Zones 5 and 6 (St. Louis is considered Zone 5).

Rhododendron viscosum or Swamp Azalea is a native azalea, hardy to Zone 4. Growing 6-8 feet tall, very fragrant trumpet-shape white flowers appear in June. *Rhododendron vaseyi,* another native azalea, blooms in early May and has spectacular bell-shape rosy-pink flowers. It is slightly smaller than *R. viscosum,* growing to about 4 feet. Both of these azaleas are native to the Appalachian Mountain range.

"CULTIVATED" AZALEAS

Grown best in the South, the **South Indian Hybrids** are a real conglomeration of plants. These plants are from a diverse parentage, but it is generally agreed that they are from acquisitions of Magnolia Gardens on the Ashley River in South Carolina about a century ago.

Gable Hybrids were developed in Pennsylvania by Joseph B. Gable. Though hardy to Zone 5, often they are not completely evergreen this far north.

Kurume Hybrids are by far the most often sold azaleas in the St. Louis area, and by far the LEAST hardy. The profusion of one-inch size flowers and compact growth make up for the rather small individual flowers and leaves. Members of this group planted in the garden include the popular 'Coral Bells' (a pink to red hose-in-hose flower) and 'Hinodegiri' (a red 1½ inch flowering form, one of the most popular nationwide.) Both are located in the north end of the Azalea-Rhododendron Garden on either side of the sidewalk.

RHODODENDRON

Rhododendron mucronulatum is the harbinger of spring in the Rhododendron world. 'Light Pink', 'Deep Pink', 'Mahogany Red', and 'Cara'—all clear colors—bloomed beautifully in March and early April.

Rhododendron catawbiense is a slightly larger shrub which opens up at ground-level with age. Catawba Rhododendron varieties have been selected with good foliage and large flowers. Two large plantings of 'Boursault' are located to the left of the walk as you enter the Azalea-Rhododendron Garden.

'P.J.M.' hybrids are named after Peter

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Stanley and Lucy Lopata Contribute to New Garden

Mr. and Mrs. Lopata

The spectacular new Azalea-Rhododendron Garden between the Ridgway Center and the Climatron is the result of a great deal of effort on the part of many individuals. Two who deserve special recognition are Stanley and Lucy Lopata.

Well known throughout the St. Louis community for their civic leadership and generosity to such institutions as Washington University, the St. Louis Symphony, the Jewish Federation of St. Louis and the St. Louis Repertory Theatre, the Lopatas have continued their long tradition of support by pledging the funds necessary to construct and maintain the portion of the new garden nearest the Tram shelter and the Ridgway Center.

"I've always enjoyed the Garden and wanted to help the institution beyond our usual membership contribution," Mr. Lopata said. "I met with Peter Raven and he suggested three projects which needed help to become a reality. After discussing it with Lucy, we decided to help with the Azalea-Rhododendron Garden."

"The Garden is such an outstanding place," Mrs. Lopata said, "we love to bring out of town guests here when we show off St. Louis. Even in winter there is always something lovely to see."

If you haven't seen this exciting addition to the Missouri Botanical Garden yet, do so soon while the azaleas are in full bloom and discover why the Lopatas have dedicated their new garden to "the finest botanical garden in the world."

Gardening in St. Louis

continued from page 5

J. Mezitt. The flowers of these hybrids are dark purple and quite profuse in April. Several large specimens are located in the garden on both the left and right sides of the sidewalk.

CULTURE

Rhododendrons have rather exacting cultural requirements, but when these are met this group will thrive. Soil must be acidic with a pH between 4.5 and 6.0. St. Louis soils are more neutral (6.0 to 7.0) with rather high clay content and therefore must be modified. Incorporate loose organic matter to provide a well-drained planting bed.

Remember too that soils will not stay acidic, so over the lifetime of the planting, soil pH must be maintained. (A soil test every 2-3 years will indicate when amendments are needed.) A 2-3 inch layer of slightly acidic mulch reduces the frequency with which the soil should be amended. Oak leaves, pine needles, or peat moss are all acidic and will moderate soil temperatures for healthier plants.

In many areas, Rhododendrons tolerate, even thrive, in full sun but not in the St. Louis area. These plants are generally shallow-rooted and should be planted in at least partial shade. There are several reasons for this—temperature swings in winter, bright hot 'southern' sun in summer, and to maintain even soil conditions.

The "rule-of-thumb" on watering with most plants holds true with *Rhododendron*. One inch of water per week, whether through rainfall, snowmelt, or supplemental watering, is needed to maintain healthy plants. When watering, water deeply. Most sprinklers will take at least an hour to deliver one inch of water. Measure output with a coffee can or rain gauge, to insure proper delivery rate.

Winter survival often depends on moisture availability. Unless there is a wet autumn, water well before final freezing temperatures arrive. During warm weather in mid-winter, water if there has been little rain or snowmelt.

When temperatures drop below 20 degrees Fahrenheit in winter, leaves tend to roll or curl up, looking much like a cigar. Some curl more readily than others, but this is usually nothing to worry about. Plants recover quickly when temperatures rise.

Fertilize in spring when new growth starts and again in the fall by ringing plants with granular or liquid fertilizers. Some sources also recommend a light application in early summer. Organic fertilizers such as well-rotted manure applied in spring will not only add nutrients but act as a mulch while decomposing. A general-purpose commercial fertilizer or one designed for Rhododendrons, azaleas, and camellias, such as Miracid, are equally acceptable.

The one mysterious task concerning ericaceous plants involves pruning. The object is to cut back after flowering but before the plant goes into the stressful summer months. Therefore, the latest recommended date is mid-June. If flowers aren't a concern, fall pruning would also be recommended.

Prune simply to remove spent blossoms preventing energy from producing seeds, to reduce the size or shape, or to remove dead or diseased wood. Remove large unwanted branches during peak flowering and use as cut flowers.

Always cut back to a bud or small shoot. Take care during major pruning where there are only dormant buds below a cut as they suffer much stress and are slow to grow. Cutting any plant back by one-third to one-half is considered maximum pruning for one year.

Fortunately, remarkably few pests attack Rhododendrons and azaleas.

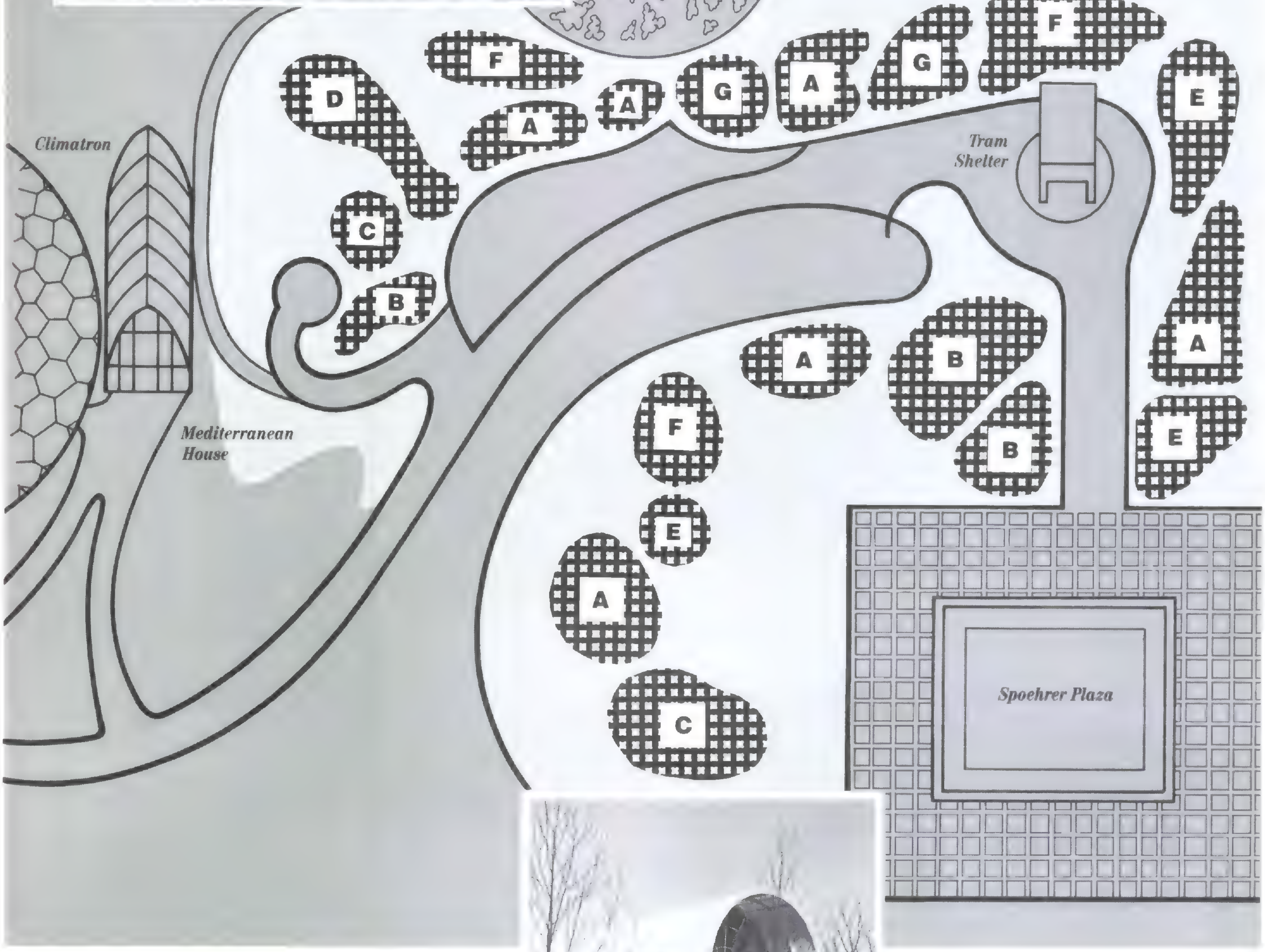
Though not an easy plant group to maintain, choosing hardy varieties and providing adequate growth conditions will provide healthy often spectacular landscape plants.

For more information contact The American Rhododendron Society, Ester Berry, Executive Secretary, 617 Fairway Drive, Aberdeen, WA 98520.

—BobbiJo Jarvis

South Area contributed by the estate of Eyvonne Huch

Azalea-Rhododendron Garden


D
F
A
A
G
A
G
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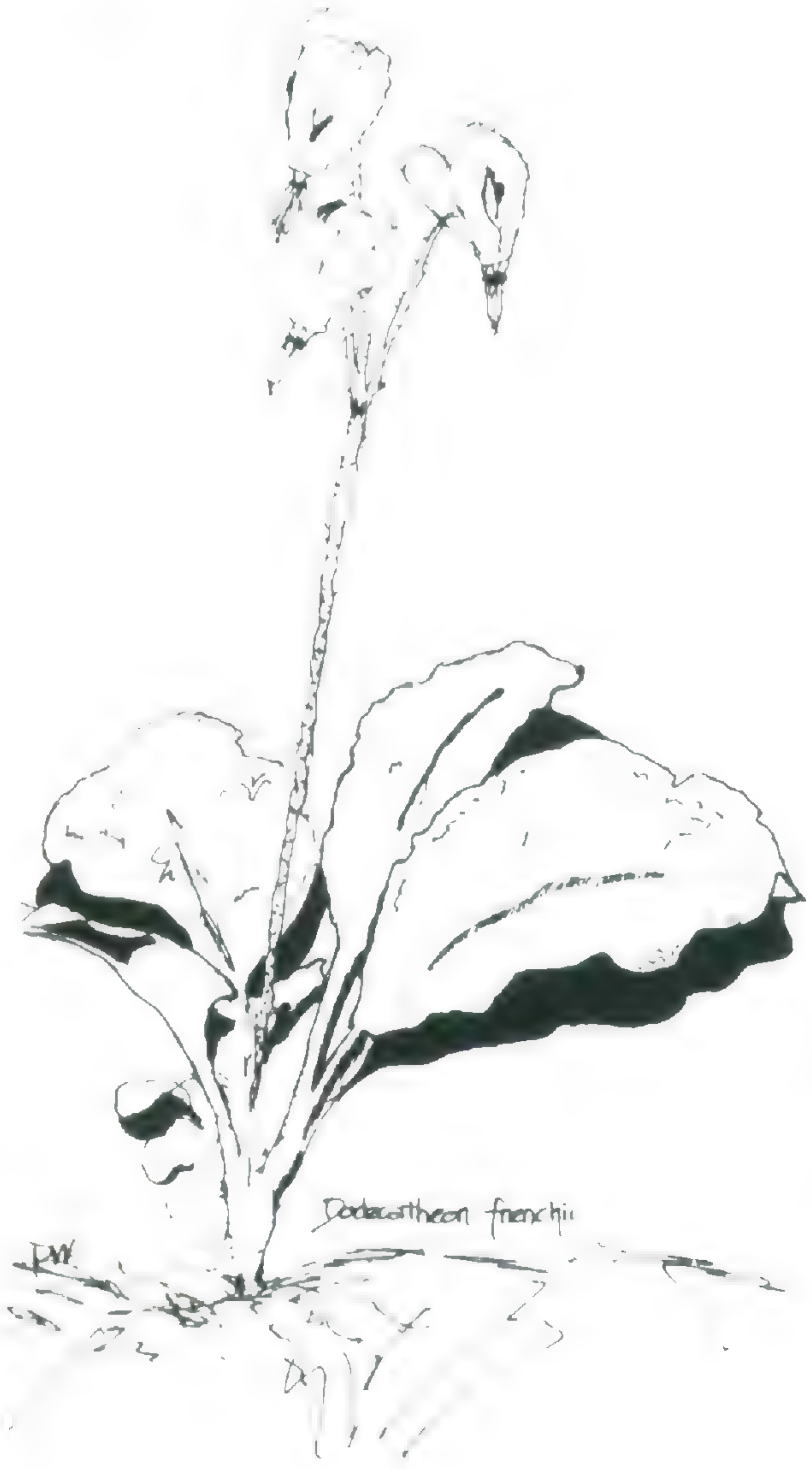
E
Climatron
Tram Shelter
C
B
A
B
A
E
F
B
Mediterranean House
E
A
C
Spoehrer Plaza

A	*R. mucronulatum*
B	*R. catawbiense*
C	*P.J.M. Hybrids*
D	*R. "Album Elegans"*
E	*Exbury Hybrids*
F	*Kurume Hybrids*
G	*Gable Hybrids*

North Area contributed by Stanley and Lucy Lopata

GARDEN JOINS NATIONAL EFFORT

CENTER FOR PLANT CONSERVATION PROJECT



Special thanks are extended to Peggy Wilmes, Plant Recorder at the Missouri Botanical Garden, for drawing the French's shooting star.

Over the last few years biologists and others have become increasingly concerned about the rapid dwindling of plant species brought about by human activity, not just in exotic lands, but also close to home in the United States. In fact, many have already become extinct. For example, the U.S. Department of the Interior Fish and Wildlife Service listed in 1985 almost 40 species in Missouri and in eight nearby states as possibly "extinct," "endangered," "threatened," or appropriate for assignment to one of these categories. Hundreds of others are under consideration with information about them still scanty. Saving most would not be terribly difficult.

While human activity is a major peril to many species, it is only one of several causes of rareness that deserve investigation. Ecological constraints sometimes confine species to unusual natural features, such as limestone glades or certain types of soil. For instance, the rare and showy French's shooting star (*Dodecatheon frenchii*) is found nowhere but on sandstone bluffs scattered in a few states. Another way in which a species might become scarce is by changes in climate, geology, or other factors.

In addition to obvious reasons for watching over vulnerable and unusual species, their existence allows research on ecological and historical influences on plant distributions, and they permit glimpses of both ends of the "lives" of species. No matter how theories change, rare species are likely to remain of theoretical interest.

Also, we do not know what the ultimate cost of allowing species to become extinct may be. We may be wasting sources of food, drugs, and ornamentals. The popular cultivated Maidenhair Tree (*Ginkgo biloba*), Dawn Redwood (*Metasequoia glyptostroboides*), and Franklin Tree (*Franklinia alatamaha*) are all extinct or nearly so outside of cultivation. Further, removal of species may have undesirable ripple effects in a fragile natural community.

Protection of plant species takes multiple forms: legislation, preservation of and/or management of critical habitat, monitoring, and education. When protection in the wild turns out to be inadequate, an alternative is cultivation at botanical institutions, the purpose of the newly established Center for Plant Conservation.

With headquarters in Boston, the Center is a national association of botanical gardens, each responsible for the imperiled species in an area assigned to it. The Missouri Botanical Garden joined the effort this winter after research aimed at pinpointing the species in our area most in need of help. There are about 30 of considerable interest, about ten of these are especially in danger, and about five will be cultivated during the summer of 1986, with others to follow in later years.

The Garden will grow numerous individuals of each species from seeds gathered to capture as much genetic diversity as possible. Collections will be made in cooperation with appropriate state and federal authorities and in consultation with biologists at other institutions. Populations will be established at the Shaw Arboretum, having ample space and a diversity of habitats, and on the grounds of the Garden for display and education.

An example of one of the species being considered for protection at the Garden is *Lesquerella filiformis*. A member of the Mustard Family (Cruciferae or Brassicaceae) it occurs exclusively on limestone glades in two counties in southwestern Missouri. Only about ten populations are known to exist, three of them on highway rights-of-way. One is on a preserved battle site. The plants are attractive, having a silvery sheen and bright yellow flowers.

Whether they will flourish under circumstances much different from their native glades is not known. Often plants thrive in cultivation, free from competition, under conditions dissimilar to the places where they were found. A second problem is that the species is an annual, having to be restarted from seed each year, which is at best inconvenient. One solution is "seed banking," that is, storing dehydrated seeds for long periods under freezing temperatures. Perhaps after conducting research and gaining experience, horticulturists at the Missouri Botanical Garden will have *Lesquerella filiformis* on display.

When visiting the Garden and Shaw Arboretum, watch the progress of the Center for Plant Conservation Project and enjoy a rare opportunity to become acquainted with some of our least often observed and most curious plant species.

—George Rogers, Ph.D.
Horticultural Taxonomist

Lehmann Building Renovation

John S. Lehmann Building

Renovation of the John S. Lehmann Building is well under way. The old auditorium has been gutted—paneling removed, floors leveled—in preparation for installing two new compactor units, which will increase storage for herbarium specimens by about 750,000. One unit will be on grade, and the other will be above it on a newly installed second level. The rest of the old education wing and greenhouse are being reconfigured into research office areas and a herbarium processing area. The lower, herbarium level of the building will also receive substantial renovation, including the installation of a new half-sized compactor in the center area and reconfiguration of several areas into research offices. Completion of this $2 million renovation is scheduled for late summer.

GARDEN TO HOST INTERNATIONAL LEGUME CONFERENCE

During the week of June 23-27 the Garden will host the Second International Legume Conference. Over 300 participants from more than 50 countries are expected in St. Louis for this five day conference entitled "Biology of the Leguminosae." The legume family is one of the economically most important plant groups, probably known best for its many edible species (beans, peanuts, peas, soybeans, etc.) and for many other uses as well (forage crops, ground cover, timber, gums, resins, ornamentals, etc.). The aim of the meeting is to discuss recent advances in the understanding of the biology of legumes, gained from both pure and applied points of view.

The conference is sponsored jointly by the Garden and the Royal Botanic Gardens, Kew, England, and occurs eight years after the first conference covering the classification of the family which was held at Kew.

The local organizer for the conference is Dr. James L. Zarucchi of the Botany Department at the Garden. Several major grants from the National Science Foundation have been received in support of the conference. One of these grants provides help to ten legume biologists from seven developing countries to participate in the conference and attend a week long workshop in herbarium management prior to the meetings.

From the Pumpkin Vine:
The famous woodland
witch, Lobelia Cardinalis,
will attend "Shaw's Halloween
Garden" to share her enchanting stories. Mark your calendar for
October 26.
Hauntingly yours,
Hepatica, Witch

MAY-JUNE

HIGHLIGHTS

MAY 17 / *Saturday*

Dawn Photo Session

5 a.m.-8 a.m., Ridgway Center. Photographers this is your chance to capture the Garden scenes at sunrise! The sun rises at 5:52 a.m. The Garden will open just for photography buffs. Don't miss this opportunity. Restaurant will open at 8 a.m. for donuts, rolls, coffee and tea. For Members Only.

MAY 4 / *Sunday*

Japanese Children's Day

11 a.m.-3:30 p.m. The Koi (Japanese carp) flag will fly in front of the Ridgway Center in celebration of Japanese Children's Day. This traditional Japanese holiday will be celebrated at the Garden with origami (paper folding) and paper carp making workshops, a coloring contest (with prizes for the winners) and a performance by Talent Education of St. Louis' Suzuki players. Japanese folktales for children ages 4-12, told by local storyteller Carol Kaminsky, will be in the Japanese Garden from 1:30-3:30 p.m. As always, fish food will be available at the Carp Bridge for feeding the Koi. Workshops are designed for children age 7-12 and require reservations. Call 577-5125 for details. Space is limited.

MAY 23-25 / *Friday-Sunday*

Summer Celebration

A weekend of activities will kickoff the Garden's extended summer hours and celebrate the 10th anniversary of the English Woodland Garden.

On Friday evening, members of the Fox Theatre Orchestra will perform a musical tribute to Glenn Miller and the Big Band era. The concert begins at 7 p.m. on Spoehrer Plaza.

On Saturday and Sunday, noon-5 p.m., teams of Morris Dancers will grace the Garden grounds. Visiting St. Louis for the Annual Midwest Morris Ale, teams will perform the colorful, traditional spring English ritual dances which are native to the Cotswold Hills.

Other activities will include tours of the English Woodland Garden, puppet shows that will include productions of *Beauty and the Beast* and Beatrix Potter's *Tale of Timmy Tiptoes*, music and more.

The jazz sounds of the Eddie Fritz Trio with Asa Harris will fill the air on Sunday evening at 7 p.m. on Spoehrer Plaza.

There is no charge for any event beyond regular Garden admission. Limited seating will be available on Spoehrer Plaza for the concerts. Lawn chairs are welcome.

MAY 29 / *Thursday*

Purple Martin Evening

6:30 p.m.-9 p.m., Ridgway Center and grounds. The Garden's Curator of Purple Martins, Ashley W. Gray III, will give a lecture and lead Members into the Garden to see our community of Purple Martins. A special guest this year will be Tom Coulson, editor of the *Nature Society News*, the official Purple Martin newspaper. The restaurant will be open for dinner and there will be a cash bar. No reservations are required but seating is limited. For Members Only.

JUNE 29 / *Sunday*

Tour of St. Louis' Private Gardens

10 a.m.-5 p.m., $15 per person. Here is a chance to visit some of the very best of the St. Louis area's private gardens. Members only and their guests can view eight very different and exciting gardens at their own pace and in any order they choose. Every kind of garden from formal to naturalistic and big to very small will be included on the tour. Bus transportation and lunch is also available. Watch your mail for details. Space is limited. Tour will run rain or shine.

JUNE 16-21

Monday-Saturday

Children's Film Festival

11 a.m. and 1:30 p.m., Shoenberg Auditorium. The Garden will host a week-long showing of some of the kids' favorite animated full-length movies. Each film will be shown twice. The first showing, 11 a.m., is For Members Only. The second showing, at 1:30 p.m., is open to the public. All seats for all shows are $1 per person on a first come, first served basis. Tickets go on sale one hour before show time with doors opening 30 minutes prior to the start of the film. For more information call 577-5125, Monday through Friday.

Monday, June 16	*Sesame Street Presents: Follow That Bird*
Tuesday, June 17	*101 Dalmations*
Wednesday, June 18	*Pinocchio*
Thursday, June 19	*Robin Hood*
Friday, June 20	*Rainbow Brite and the Star Stealer*
Saturday, June 21	*Pete's Dragon*

Summer Hours Begin May 23

Beginning Friday, May 23, and continuing through Monday, September 1, the Garden will be open until 8 p.m. Evening is an ideal time to take a Tram ride through the Garden. Trams feature an all-new narrated tour. Fare is $1.50.

MAY-JUNE

DAY-BY-DAY

MAY

NOTE: Complete course descriptions and registration information is contained in the Spring Courses brochure which was mailed in January and the Summerscape Press brochure which will be mailed soon. To sign up or check on class availability call the Education Department at 577-5140.

3

Biblical Plants Exhibit
9 a.m.-5 p.m., Mediterranean House. Through June 1. This special exhibit highlights many of the plants found in the Mediterranean region that have biblical significance or are referred to in the Bible.

Iris Society Show
12 noon-5 p.m., Orthwein Floral Hall.

Migrating Birds
8 a.m.-1 p.m., Arboretum Visitor Center. $6 Members, $7 non-members.

4

Japanese Children's Day
11 a.m.-3:30 p.m., *(See Highlights.)*

Sunday Afternoon Wildflower Walk
1 p.m.-4:30 p.m., Arboretum Visitor Center. $4.50 Members, $5.50 non-members.

6

Henry Shaw—The Man and His Country Home
7 p.m.-9 p.m., Shoenberg Auditorium. $5 Members, $6 non-members.

Spring Wildflower Walk
9:30 a.m.-1:30 p.m., Arboretum Visitor Center. $1 Members, $2 non-members.

7

Volunteers' Evening
6:30 p.m.-8:30 p.m., Monsanto Hall. An evening devoted to recognition of the Garden's many devoted volunteers. Awards will be presented to volunteers for outstanding service.

8-11

Herb Sale
9 a.m.-6 p.m., Thurs. & Fri. and 9 a.m.-5 p.m., Sat. and Sun., Orthwein Floral Hall and Garden Gate Shop. *(See page 15 for details.)*

8

Designing and Caring for an Herb Garden
11 a.m., Shoenberg Auditorium. In conjunction with the Herb Sale, Cindy Gilberg of Gilberg Perennial Farms will present a lecture For Members Only.

10

The Lore and Modern Uses of Herbs
11 a.m., Shoenberg Auditorium. In conjunction with the Herb Sale, Mary Clair Wenger of the St. Louis Herb Society and owner of Sassafras Hills Farm will present a lecture. Free and open to the public.

Breakfast with the Birds
8 a.m.-10 a.m., Gardenview Restaurant. $7 Members, $9 non-members (includes continental breakfast).

Intensive Floral Design
12:30 p.m.-3:30 p.m., Ridgway Center. First of two Saturday sessions. $50 Members, $60 non-members.

Delight of the Dahlia
10 a.m.-noon, Ridgway Center. $6 Members, $7 non-members.

Predators of the Sky
9 a.m.-noon. Arboretum Visitor Center. $5.50 Members, $6.50 non-members.

11

Mother's Day
Bring Mom to the Garden on her special day.

River Styx P.M. Series
8 p.m., Shoenberg Auditorium. "Family Album" by William Gass. Call 361-0043 for details.

13

Inside Tower Grove House
7 p.m.-9 p.m., Tower Grove House. First of two Tuesday sessions. $15 Members, $20 non-members.

Spring Wildflower Walk
9:30 a.m.-1:30 p.m., Arboretum Visitor Center. $1 Members, $2 non-members.

Perennial Treasures
7 p.m.-8:30 p.m., Ridgway Center. $5 Members, $6 non-members.

14

First Street Forum Lecture: George Dickie
8 p.m., Shoenberg Auditorium.

16

Night Hike
8 p.m.-10:30 p.m., Arboretum Visitor Center. $4.50 Members, $5.50 non-members.

16-17

Muir Trek
7:30 p.m., Arboretum Visitor Center. $25 Members, $28 non-members.

17

Dawn Photo Session
5 a.m.-8 a.m., Ridgway Center. For Members Only. *(See Highlights.)*

Pruning Ornamental Shrubs
9:30 a.m.-12:30 p.m., Ridgway Center. $10 Members, $12 non-members.

17-18

Horticulture Society Show
Noon-5 p.m., Sat., 9 a.m.-5 p.m. Sun., Orthwein Floral Hall. Free with Garden admission.

20

Spring Wildflower Walk
9:30 a.m.-1:30 p.m, Arboretum Visitor Center. $1 Members, $2 non-members.

21

Evening Walk in Japanese Garden
6:30 p.m.-8:30 p.m., Ridgway Center. $6 Members, $8 non-members.

22

Evening Walk in Japanese Garden
6:30 p.m.-8:30 p.m, Ridgway Center. $6 Members, $8 non-members.

23

Night Hike
8 p.m.-10:30 p.m., Arboretum Visitor Center. $4.50 Members, $5.50 non-members.

23-25

Summer Celebration
A weekend of activities to usher in the summer. *(See Highlights.)*

24-25

Rose Society Show
Noon-5 p.m. on Sat., 9 a.m.-5 p.m. on Sun., Orthwein Floral Hall. Free with regular Garden admission.

26

Memorial Day
Enjoy the beginning of the summer season at the Garden.

29

Purple Martin Evening
6:30 p.m.-9 p.m., Ridgway Center and grounds. For Members Only. *(See Highlights.)*

MAY-JUNE

DAY-BY-DAY

JUNE

2 **Plant Clinic**
9 a.m.-noon, Ridgway Center. Free.

5 **Painting Flowers**
10 a.m.-noon, Ridgway Center. For members of the Soule Center for Senior Citizens only. $5.

6 **Rose Evening**
4 p.m.-8 p.m., Rose gardens. Be a part of one of the Garden's most delightful events of the year. Join fellow members for dinner or a stroll through the Gladney and Lehmann Rose Gardens.

7 **The Nature of Insects**
9 a.m.-3 p.m., Arboretum Visitor Center. $6 Members, $7 non-members.

10 **Summer Rose Care**
10 a.m.-noon, Ridgway Center. $9 Members, $11 non-members.

Landscape Appreciation: Developing Style
6:30 p.m.-8 p.m., Ridgway Center. First of three Tuesday sessions. $20 Members, $23 non-members.

11 **Rules of Plant Identification**
9:30 a.m.-11:30 a.m. or 1:30 p.m. -3:30 p.m., Ridgway Center. $5 Members, $6 non-members.

Gardener's Walk: Mediterranean House
6:30 p.m.-8 p.m., Mediterranean House. $7 Members, $10 non-members.

14 **Trees of the Arboretum**
10 a.m.-3 p.m., Arboretum Visitor Center. $7.50 Members, $9 non-members.

15 **Father's Day**
A great day to take Dad to the Garden.

16 **Plant Clinic**
9 a.m.-noon, Ridgway Center. Free.

Children's Film Festival
11 a.m. and 1:30 p.m., Shoenberg Auditorium. *Follow That Bird*. All seats $1. *(See Highlights.)*

17 **Children's Film Festival**
11 a.m. and 1:30 p.m., Shoenberg Auditorium. *101 Dalmations*. All seats $1. *(See Highlights.)*

Drawing and Painting in the Garden
9 a.m.-11 a.m., Ridgway Center. $18 Members, $20 non-members.

18 **Children's Film Festival**
11 a.m. and 1:30 p.m., Shoenberg Auditorium. *Pinocchio*. All seats $1. *(See Highlights.)*

18 **Perennials Identification**
9:30 a.m.-11:30 a.m. or 1:30 p.m. -3:30 p.m., Ridgway Center. $5 Members, $6 non-members.

Gardener's Walk: Climatron and Desert House
6:30 p.m.-8 p.m., Climatron. $7 Members, $10 non-members.

19 **Children's Film Festival**
11 a.m and 1:30 p.m., Shoenberg Auditorium. *Robin Hood*. All seats $1. *(See Highlights.)*

20 **Children's Film Festival**
11 a.m. and 1:30 p.m., Shoenberg Auditorium. *Rainbo Brite and the Star Stealer.* All seats $1. *(See Highlights.)*

Bats in Your Belfry and Elsewhere
8 p.m.-10 p.m., Arboretum Visitor Center. $6 Members, $7 non-members.

Night Hike
8 p.m.-10:30 p.m., Arboretum Visitor Center. $4.50 Members, $5.50 non-members.

21 **Children's Film Festival**
11 a.m. and 1:30 p.m., Shoenberg Auditorium. *Pete's Dragon*. All seats $1. *(See Highlights.)*

Summer Solstice Celebration
8 p.m.-10:30 p.m., Arboretum Visitor Center. $6 Members, $7 non-members, $3 children under 12.

Of Witches and Houses and Things
10:30 a.m.-noon, Ridgway Center. $6 Members, $7 non-members.

25 **Tree Identification**
9:30 a.m.-11:30 a.m. or 1:30 p.m. -3:30 p.m., Ridgway Center. First of three Wednesday sessions. $15 Members, $18 non-members.

28 **In the Rose Garden**
10:30 a.m.-noon, Ridgway Center. $6 Members, $7 non-members.

Land of Myth and Magic
1:30 p.m.-3 p.m., Ridgway Center. $6 Members, $7 non-members.

29 **Tour St. Louis' Private Gardens**
10 a.m-5 p.m., $15 per person *(See Highlights.)*

Adlyne Freund Center Valuable Arboretum Feature

Unless you've taken one of the many classes offered at Shaw Arboretum, you may be unaware of a truly remarkable facility there, the Adlyne Freund Center.

Acquired by the Garden in 1977 through the generosity of Mrs. Freund and with the guidance of Mrs. Freund's daughter and her husband, Jane and Whitney Harris, the Center's magnificent stone building and surrounding 220 acres serve as a year-round facility for educational programs including seminars, teacher workshops, conferences and meetings.

VOLUNTEER RECOGNITION AWARDS

On May 7, 1986, the Garden will recognize the hundreds of dedicated volunteers who perform many important tasks in all areas of the Garden with Volunteers' Evening. While all deserve the highest praise for their contributions, the following individuals and groups warrant special notice.

SPECIAL ACHIEVEMENT

This category honors the volunteer who has performed research or a special project for his or her department. **Harriot Smith**, a Guide in the Education Department, was chosen to receive this award for the tremendous job she did in organizing the current training program for new Guides. She has been a volunteer for 19 years.

SPECIAL SERVICES

This category honors volunteers who have given time above and beyond their normal volunteer commitment. **Gene Jarvis** of the Climatron was chosen to receive this award for the time she puts in on special displays, the Japanese Festival and children's projects, in addition to her regular volunteer time commitment. She has been a volunteer for 12 years.

COMMITMENT

This award honors the volunteer who comes in on a regular and faithful basis throughout the year and is conscientious about the tasks he or she performs, even though they are not inherently rewarding. Two volunteers were chosen to receive this award. **Bill Phillips** performs his work in the Botany Department with enthusiasm and an extraordinary sense of responsibility. He is very capable, dedicated, and has volunteered for the past seven years in that department.

Ray Garlick was chosen to receive this award for the many daily tasks he performs at the Arboretum since his retirement from the staff in June, 1984. He has worked at everything from brush hogging to firing up the Visitor Center on cold winter mornings. He has worked a total of 1,026 hours in 1985 and his skill and service are exceptional.

IN MEMORIAM

Victor Mühlenbach

The Missouri Botanical Garden lost a distinguished and beloved long-time staff member on March 15, 1986, with the death of Victor Mühlenbach, M.D., Emeritus Curator of Botany. Although Dr. Mühlenbach was 87 and had suffered from failing health for several years, he maintained his lively enthusiasm for botany in general and for work on his final manuscripts in particular until his last days.

Dr. Mühlenbach's association with the Missouri Botanical Garden began in 1953 while he was a staff microbiologist for the St. Louis Department of Public Health. Through an introduction from Professor Dr. F. Markgraf, director of the Botanical Garden in Zürich, he was invited to attend a staff meeting and to discuss his plans. A research associate at the Garden since 1956, he embarked soon after his arrival on an ambitious project to prepare a flora of the adventive plants of the railroads of St. Louis.

Between 1954 and 1980, when he finally had to give up active collecting, Dr. Mühlenbach made more than 600 excursions along the railroad tracks and yards of St. Louis, where he was a familiar and popular figure to many railroad workers. After his retirement from the public health labs, he was able to devote more time to his work, and in 1979 he published his major paper—"Contributions to the synanthropic (adventive) flora of the railroads in St. Louis, Missouri, U.S.A."—in the *Annals of the Missouri Botanical Garden.*

He received accolades and requests for his paper from many quarters, and his work is considered a pioneering effort in the study of adventive railroad plants in North America. He also published many other articles and notes, and in the past few years devoted himself to writing about the flora of Latvia, the country of his birth. Several articles will be published posthumously.

Victor Mühlenbach will be sadly missed by the many Garden staff, students, and visitors who were always impressed by his erudition, helpfulness, and devotion to his work. Even in his last years, when he was confined to a wheelchair and able to read only with difficulty, he remained cheerful, remarkably clear of mind, and determined to finish his projects. He will be remembered with great affection and respect by his many friends. He is survived by his daughter, Ilze, and his son, Carlis.

—Peter Hoch, Ph.D.

GROUP AWARD

The Answer Service was chosen to receive the Group Award. This award honors the group who has made outstanding contributions on a special project, donated many hours or demonstrated outstanding commitment. The Horticultural Answer Service has provided an outstanding service to the Garden for over 20 years. Each year from March—October over 40 volunteers man the phones from 9 a.m.-noon (six volunteers daily), to answer questions. From November—February they attend weekly training sessions. Their dedication and willingness to continue improving their skills and their eagerness to share their knowledge provides an invaluable service.

FROM THE MEMBERSHIP OFFICE

Members Only Private Garden Tour

Hidden away in St. Louis are some beautiful private gardens. On June 29, Members will have a rare opportunity to view eight very different and unique gardens.

This is a wonderful selection of gardens from a large formal country estate with pools and statuary to suburban naturalistic landscapes to a very small formal Japanese garden complete with ceremonial tea house and bonsai. Some gardens may inspire you to take notes and try some of their ideas in your own landscape. Ideas on garden details abound, including edging materials, decks and patios, pools, gates, and garden beds.

The tour includes gardens of noted architect Bill Bernoudy and well-known St. Louis landscape architect Harriet Bakewell, who considers her garden an extension of the indoor living space.

Participants may tour on their own or may join a bus tour of the homes. Watch the mail for an invitation to the Garden Tour in early June. It will contain registration information. Participation is limited so mark your calendar today!

Project Amazon

Join fellow members of the Missouri Botanical Garden in exploring the Amazon on an adventure cruise this fall. The Missouri Botanical Garden and The New York Botanical Garden are co-sponsoring this unique expedition exploring the river, its tributaries, the rainforest, and the people of the region. This close-up look at the flora and fauna will be led by the Garden's own Dr. Alwyn H. Gentry and Dr. Ghillean T. Prance of The New York Botanical Garden.

Participants will enjoy all the comforts of home aboard the *Society Explorer*, a first class expedition ship which offers exceptional maneuverability and can navigate confined waterways. A highlight of the trip will be a visit to the research sites of the New York and Missouri Botanical Gardens and the Peruvian institutions with which they collaborate. Trip participants will see the delicate balance of life in the rainforest and understand the dilemmas facing the Amazon region as it is developed.

Join the Garden for this unparalleled experience from October 21, to November 7, 1986. Trip fees start at $3290. For a brochure and additional information contact Dana Hines at 577-5108.

Remember Mom!

Mother's Day is right around the corner. Show Mom how much you care by sending her a membership in the Missouri Botanical Garden. Use the enclosed membership gift form or call the Membership Department at 577-5118 by May 2, and we will send your Mom her gift membership and her imported Swiss floral garden handkerchief. She'll love it!

UPCOMING MEMBERS' DAYS

Dawn Photo Session, Saturday, May 17

Photographers, this is your chance to capture the Garden scenes at sunrise! The sun rises at 5:52 a.m. The Garden will open just for photography buffs at 5 a.m. Don't miss this opportunity For Members Only. The Gardenview Restaurant will be open at 8 a.m. with donuts, rolls, coffee and tea.

Purple Martin Evening, Thursday, May 29

The Garden's Curator of Purple Martins, Ashley W. Gray III, will give a lecture presentation in Shoenberg Auditorium and then lead Members into the Garden to view the Garden's community of Purple Martins. A special guest this year will be Tom Coulson, editor of the *Nature Society News*, the official Purple Martin newspaper. There will be a cash bar and the restaurant will be open for dinner. Seating is limited and available on a first come, first served basis. No reservations are required.

Rose Evening, Friday, June 6

Be a part of one of the Garden's most delightful events of the year...Rose Evening. Join fellow Members for dinner or a stroll through the Gladney and Lehmann Rose Gardens. Your invitation and reservation form for this summer evening's affair will be arriving shortly.

June 29	*Private Garden Tour*
July 24	*Henry Shaw's Birthday Party*
August 12 & 19	*Evening Garden Tours*
September 21	*Camera Day*
October 9 & 16	*Lecture and Tour Missouri Wine Country*
November 16	*The Making of a Flower Show*
December 11	*Members' Dinner and Holiday Concert*

Reciprocal Admission Program

Special and personalized treatment is the best part of being a Member of Missouri Botanical Garden. Now you can enjoy that same hospitality when visiting other botanical gardens and arboreta throughout the country. The Missouri Botanical Garden and seven sister institutions are participating in a reciprocal admission program that extends some of the benefits of membership when you visit. Just present your MBG membership card at the following institutions and you'll feel right at home!

- Hershey Gardens, 621 Park Avenue, Hershey, PA 17033. (717) 534-3531.
- Dallas Arboretum and Botanical Society, 8525 Angarland Rd., Dallas, TX 75218. (214) 327-8263.
- Blithewold Gardens and Arboretum, Ferry Road, Bristol, RI 02809. (401) 253-2707.
- Chicago Botanic Garden, Lake-Cook Road, Glencoe, IL 60022. (312) 835-5440.
- Morris Arboretum, 215 Hillcrest, Philadelphia, PA 19118. (215) 247-5777.
- Massachusetts Horticultural Society, Horticultural Hall, 300 Massachusetts Avenue, Boston, MA 02115. (617) 536-9880.
- New York Botanical Garden, Southern Blvd., 200th Street, Bronx, NY 10458. (212) 220-8700.

From the Garden Gate Shop

1986 Spring Herb Sale

The Orthwein Floral Hall will be brimming with aromatic herbs and colorful perennials for the Herb Sale May 8 to May 11. The Members' Pre-Sale, for best selection, is May 8 and 9 from 9 a.m. to 6 p.m. The sale is open to the public Saturday, May 10 and Sunday, May 11 from 9 a.m. to 5 p.m. Members save 20 percent on all four days in the Orthwein Hall. Mother's Day falls on the last day of our Herb Sale, so bring your mother in for a day at the Garden and shop the sale.

Mother's Day/May 11

Visit the Garden Gate Shop to select the perfect gift for Mother's Day. The Plant Shop is offering an excellent selection of blooming plants, tropicals, hanging baskets and miniature roses for that special person.

The Gift Shop has an exclusive silk scarf with Missouri wildflowers in either blue or green and "Redouté Roses" note paper at a special price of $3.00. Our other Mother's Day features include pillows, soaps and potpourri, handbags, fashion jewelry and porcelain figurines. The Garden Diary is also a special gift with monthly tips for both the flower and vegetable gardener. As always, Gift Certificates are available.

Father's Day/June 15

Don't forget Father on his day. You will find a nice assortment of gifts from fine gardening tools to distinctive sun dials and chimes.

And the Lucky Winners Are...

...Mr. and Mrs. Robert Smith of St. Louis were the winners of the Mexico trip drawing held in conjunction with the Holiday Flower Show. The trip was made possible through the efforts and generosity of Judy Peil Travel and American Airlines. The Smiths will be traveling to sunny Puerto Vallarta just about the time winter rolls around again. Pictured at left (left to right) are Judy Peil, Mr. and Mrs. Smith and Dana Hines, membership coordinator.

Moonlight and Roses

Some people really know how to celebrate their birthday, and **Rose Denness** is one of those people. A Garden Member and, as her name suggests, a rose enthusiast, Rose decided to celebrate her 40th birthday in grand style and as a benefit to the Missouri Botanical Garden. On February 2, Rose planned an evening of moonlight and roses and invited over 200 of her best friends. The party was a delightful, romantic and lively evening for anyone who liked to dance, listen to the Ralph Butler Band, and share a toast with friends at La Bastille. The party resulted in a donation of $600 to the Garden and a birthday that will be long remembered.

Tower Grove House Auxiliary To Celebrate Tenth Anniversary

The Tower Grove House Auxiliary will be celebrating its tenth year of existence with three special luncheons, May 27, 28, and 29, 1986 in the Tea Room of the house. The cost of the special luncheon, which will be served between 11:30 a.m. and 1 p.m., is $9 per person. Call 577-5150 for details.

Please make____reservations for the **Special Luncheon and Tour** of Tower Grove House between 11:30 a.m. and 1 p.m.

☐ Tuesday, May 27, 1986
☐ Wednesday, May 28, 1986
☐ Thursday, May 29, 1986
☐ Enclosed is my check for $______, at $9 per person, made payable to Tower Grove Auxiliary.

Name____________________________

Address__________________________

City______________State____Zip________

Phone___________________________

Mail to: **Tower Grove House,** P.O. Box 299,
St. Louis, MO 63166

For Younger Members

Plants That Eat Insects

HUH! G-GOT ME! THIS THING'S ALIVE— UHHHN—

Fable: Carnivorous plants can eat big animals, or even humans.
Fact: The meat-eating parts of carnivorous plants are much too small to trap and digest large animals or humans.

The ladybug seemed to know just where it was going. Its body, covered in orange with four black spots, moved slowly toward an unusual plant called a **Pitcher Plant**. It crawled up the outside of the plant. Near the top of the plant, the ladybug crawled along the edge of a leaf shaped like a small jug, or pitcher. Here, the ladybug began to eat a sweet-smelling juice called nectar. As it reached down into the jug-shaped leaf to eat more, the ladybug slipped and fell. It landed inside the pitcher, which was partly filled with water. Inside the pitcher, stiff hairs that grow downward prevented the lady bug from crawling back out. Each time the ladybug tried to crawl or fly back out, it fell back into the water. Unable to escape, it had become trapped by a plant that eats insects.

You may have seen insects, such as bees or butterflies, crawling on plants to get food from their flowers. Or you may have noticed caterpillars eating the leaves of trees or shrubs. These insects get their food from plants. But sometimes the opposite happens. There are some plants that get their food from insects! Such plants are called **carnivorous**. The word **carnivorous** means "meat-eating." Carnivorous plants feed mainly on insects. Sometimes they may feed on very small animals, such as mice or tree frogs.

Other kinds of plants grow by getting food or nutrients from the soil in which they live. But many carnivorous plants live in bogs or swamps where some of the basic nutrients are missing. However, these nutrients can be found in the bodies of insects. By trapping and digesting insects, the carnivorous plants are able to get the extra food they need to grow well. But how does a carnivorous plant trap an insect?

A frog can flip out its long, sticky tongue to actively catch a fly or mosquito. But a carnivorous plant has no such part that can reach out and grab an insect. The frog has a mouth and throat that allow it to eat and swallow the insect. But a carnivorous plant has no "mouth" parts to help it "eat" the insect. Instead, the plant must have a strong smell or a bright color that will attract the insect. The insect will crawl or fly closer to the plant because of the smell or color. The carnivorous plant has special parts that help it trap an insect that touches the plant. Once the insect is trapped, it is slowly digested by special juices in the leaves of the plant. Let's find out more about some of the traps used by other carnivorous plants.

Venus Flytrap The leaves of the Venus flytrap are different from the leaves of ordinary plants. Its leaves have two separate parts that can fold over an insect and trap it. The edges of each leaf are lined with spikes or spines. Three very sensitive hairs also grow on the surface of each leaf half. When an insect lands on the leaf, it may touch these "trigger" hairs. If the hairs are touched two times, the leaf halves will snap shut in less than a second! Once the leaf closes, it begins digesting the soft body parts of the insect. The leaf will stay closed for several days—perhaps as long as two or three weeks. Sometimes it may not open again, but just wither and die. If the leaf does reopen, it will do so very slowly. Only another insect, brushing against its trigger hairs, can make the leaf snap shut again.

Sundew The leaves of the sundew plant are covered with many tiny hairs. Each hair is covered with drops of sticky juice. The leaves sparkle when sunlight shines through the clear, sticky droplets. The sticky juice smells very sweet to insects. When an insect crawls onto one of the leaves, it becomes caught in the sticky juice. Then the hairs on the leaf bend toward the insect and hold it in place. Once it is trapped, the insect is digested by the leaf. It may take four to eight days for the sundew to digest the insect. After this time, the leaf will be ready to trap another insect.

The Venus flytrap, sundew, and pitcher plant each have their own special way to trap insects. Then they digest the soft body parts of the insects. In this way, the insects become the food that helps these plants grow. Now that you know a little bit about carnivorous plants, you may want to learn even more. **The Missouri Botanical Garden has a special Carnivorous Plant Show on display in Monsanto Hall, until May 18. Bring your family and friends.** You will all be able to see the strange and often beautiful leaves that help these plants trap and digest insects.

—Ilene Follman, Education Consultant

PUZZLE

Draw a circle around the animals that could be trapped by carnivorous plants:

moth
horse
fly
spider
wasp
mouse
turkey
cricket
dog
ant
pig
beetle
bee
tree frog
deer
dragonfly

ANSWERS: moth, fly, spider, wasp, mouse, cricket, ant, beetle, bee, tree frog, dragonfly

Plant Talk From the Gardenview Restaurant

Soybeans

FOOD FACTS:

There are multiple uses of the soybean, *Glycine max*, a member of the Legume family (Leguminosae). This plant is grown in temperate climates and was domesticated in China. The United States leads the world in production with 45 million metric tons annually, chiefly grown in and around the state of Illinois. There are thousands of soybean varieties adapted to a diversity of environments and as a forage crop.

Soybeans are grown for their seeds which are 18 percent vegetable oil and 50 percent protein. Soybean protein and oil extracts can be made into artificial frankfurters or other meat products. Both flour and milk can be produced from the soybean. Soybeans are short day plants and therefore not well suited to cultivation in the tropics. Plant breeders are still hoping to produce cultivars that will adapt to the humid tropics.

Soybean pods can be eaten fresh in salads, boiled as a vegetable, or roasted and eaten like peanuts. Sprouted beans are used in salad and chow mein. Soy flour is used in bread and muffin mixes and can be mixed with non-fat milk solids to be used as a dairy product (liquid or frozen). Soy sauce is a naturally brewed product of soybeans used as an all purpose seasoning in oriental cooking. Soybean oil is popular in cooking, and has many industrial uses in the manufacture of soaps, lubricants, adhesives, plastics and insecticides.

FOOD TIPS:

Bean Sprout Salad

2 cups chopped, cooked ham
1 lb. soybean sprouts, rinsed and drained
2 tsps. soy sauce
1/4 cup french dressing
2 Tbl. each: chopped onion, green pepper, celery
1/2 cup chopped sweet pickle
3/4 cup mayonnaise
Dash of pepper

Combine ham and bean sprouts with French dressing and soy sauce. Chill about 30 minutes. Add remaining ingredients and toss. Serve on salad greens. Yield: 4 servings

Kid's Tip:

Tofu is soybean curd, made from soy milk. It is prevalent in many forms in East Asian cuisines. Soft, cheese-like, and bland in its basic form, tofu lends itself beautifully to seasonings and can be fried, mashed with bananas, or mixed with cottage cheese. Its texture can be altered in many ways through various cooking and pressing techniques. Tofu is high in protein, low in calories and carbohydrates, and has no cholesterol. It can be made at home or purchased from supermarkets or natural food stores.

—Ken Laser, Chairman
Education Department

FOOD FUN DAYS

Mother's Day Brunch
May 11, 1986

Join us for a special Mother's Day Brunch in the Gardenview Restaurant 9:30 a.m. - 2:00 p.m.

Gardenview

Following our theme of soy products, during May and June we will have bags of roasted salted soybeans available in the restaurant. Try this new snack food.

Herb Sale

During the Herb Sale May 8-11, 1986, the Gardenview will feature fresh baked loaves of herb bread for sale.

NATIONAL SCIENCE FOUNDATION GRANT TO SUPPORT GARDEN SUMMER INSTITUTE

The education department of the Garden has been awarded a three-year grant from the National Science Foundation. The $141,348 award will be used to finance a Summer Institute in Environmental Sciences. This program will train 30 kindergarten, elementary and high school teachers in environmental studies.

The Summer Institute will be held from June 30—August 1, 1986, Monday through Friday for four hours each day. Sessions will be led by the Garden's education staff, community experts and environmental leaders, using facilities at the Garden, Shaw Arboretum and other locations. Five environmental concepts will be explored during the 24 sessions, and all participants will develop both group and independent projects for classroom instruction. Teachers will receive six hours of graduate credit from the University of Missouri-St. Louis, to be used toward science certification.

Dr. Kenneth D. Laser, chairman of the Garden's education department, said the Institute will be available on a competitive basis to teachers in public or private schools in the metropolitan St. Louis area. To be eligible, a teacher must have a minimum of three years teaching experience and assurance from their school supervisor that skills learned and curricular materials developed will be used as part of their next year's teaching. Teachers will also need release time and substitute pay to attend the post-institute day in January of 1987.

For more information or applications to the Summer Institute, teachers or their supervisors should call Dr. Laser at 577-5139 or 577-5140.

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Plants To Remember

Jacobs Bulb Garden

Through the winter, visitors may have seen construction just south of the Gladney Rose Garden, resulting in the new Jacobs Bulb Garden. This garden was made possible through the generosity of Jane Jacobs and is dedicated to the memory of her parents. Late in 1985, paths, borders, seating areas, and an irrigation system were installed. This spring hundreds of tulip, hyacinth, crocus, *Muscari*, and the more unusual *Allium giganteum*, or Giant-Flowering Onion, bloomed. In all, more than 3,400 bulbs were in bloom.

Over the next couple of years, many more unusual bulbs and bulb-like plants such as hardy lilies, fritillaria, and species tulips, will be incorporated into the garden. In addition to the familiar spring bulbs, summer and fall-flowering specimens will make this a true four season garden. Watch this garden throughout the year to see what new plants pop up.

—BobbiJo Jarvis

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BULLETIN

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Japanese Festival: August 23 through Labor Day

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The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $35 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

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Comment

Volunteers: Our Greatest Asset

On June 4, I was honored to attend a luncheon recognizing Garden Volunteers who have given ten years or more of service to the Missouri Botanical Garden. I was surprised — and very pleased — to learn that 112 individuals have devoted this much time and effort to the Garden.

Five volunteers have given 30 or more years of service, six other volunteers have served more than 20 years, and 101 others have volunteered their time and skills for at least ten years. All received gold pins with the Garden's logo and either a diamond, emerald or ruby inset to signify their length of service.

The volunteer recognized this year with the longest service is **Virginia Porter Schreiber.** As a member of the St. Louis Herb Society, Virginia began volunteering at the Garden in 1950, working in the Herb Garden and in the greenhouses.

Close behind, with 33 years of service each, are **Mary Gamble** and **Dan O'Gorman.** Mary is a past president of the Herb Society and started the first classes on the use of herbs at the Garden. She has also edited several books on the subject. Dan began volunteering in 1953 and has collected and edited material for the *Bulletin;* helped with children's activities; planted several areas of the Garden; represented the Garden on radio; and helped organize the Answer Service.

In 1955, **Mary Holekamp** and **Cliff Rhoads** began devoting their time to the Garden. Mary, who is also a past president of the Herb Society, is currently a Guide and has been on the Members' Board, Answer Service, Speakers Bureau, served as an instructor and worked in the Boxwood and Herb gardens. Cliff started as a member of the St. Louis Garden Club and helped layout and plant the Rose Garden. He helped make lists, label trees and answer questions. The Garden was quick to recognize this potential and the Answer Service was born.

These people exemplify the quality, diversity, and dedication of the more than 500 volunteers who contribute over 50,000 hours of service to the Garden. I know I speak not only for myself, but for the staff and all the Members, when I say "thank you, volunteers!"

Peter H Raven

Boston-Lappin Photography/*St. Louis Business Journal*

Mrs. Jean Thorne and Mr. John Hughes of Fannie May Candies Foundation, shown here in Seiwa-En. Fannie May Candies Foundation is the exclusive sponsor of the 1986 Japanese Festival.

THE FACE OF
Japan:
YESTERDAY & TODAY

11th Annual Japanese Festival

AUGUST 23 through SEPTEMBER 1

The 11th Annual Japanese Festival at the Garden is back! Sponsored exclusively by Fannie May Candies Foundation, the 1986 festival promises to be the biggest and best one yet.

The Festival will open the weekend of August 23 and run through September 1 (Labor Day). The long holiday weekend will extend the Festival to ten full days.

"The Face of Japan: Yesterday and Today" is the 1986 theme. For the first time visitors will be able to glimpse the modern cultural life as well as the treasured traditions of Japan. High-tech electronics and transformer toys will contrast with the gentle beauty of traditional arts. Exhibits and performances will feature both the differences and similarities of the old and new Japan.

■ The Opening Weekend

Leading off the Festival the first weekend will be the popular Taiko Dojo (drummers) groups and martial arts experts. Leading practioners of both Judo and Kendo are scheduled to perform and demonstrate techniques. Featured will be the Central California Kendo Federation and the St. Louis Budokai Judo Club. Two Taiko Dojo groups will perform. A highlight of the first weekend will be outdoor evening performances of the combined Taiko groups.

Bonsai, the ancient art of keeping a tree or shrub maintained at a fraction of its natural size, will be featured by the Bonsai Society of St. Louis in Flora Gate both Saturday and Sunday.

■ The Artisan Tent *(Both weekends)*

A trip through the Artisan Tent is a must. Festival visitors will be able to watch an artist making Japanese fans, another making delicate display dolls, and a calligrapher exhibiting his skills.

The artists will offer their wares for sale, and both the Japan America Society and the Japanese-American Citizens' League will have a wide variety of souvenirs available.

■ Exhibits *(Full ten days)*

A number of exhibits are scheduled to appeal to both traditional and contemporary tastes. Japanese dolls will be on display as will the elaborate, traditional Girl's Day and Boy's Day exhibits. Japanese swords and armament will be featured also.

One gallery will feature the watercolors of contemporary Japanese artists. In contrast, the popular transit posters from the streets of Tokyo will also be exhibited.

An exceptional new exhibit called SHOBO: Japanese Firemen's Coats will be featured in Monsanto Hall. These special garments were designed in the late 19th-century. During that period, most construction was of bamboo, wood and thatch, making

(continued on page 4)

Japanese Festival *(continued from page 3)*

the fireman a vitally important person. The coats are both dyed, quilted cotton and leather with designs reflecting fierce pride and sense of competition.

Candlelight Walks

(Selected evenings)

There is nothing more beautiful than a stroll through the tranquil Japanese Garden in the evening. Unless, of course, you add candlelight and music.

Seiwa-En will be decorated in the subtle Japanese manner with candlelight reflected from the lake. The soothing sounds of oriental music will float through the air.

Candlelight walks will be held the first weekend on both Saturday and Sunday evening (August 23 and 24), beginning at 9 p.m. Candlelight walks will resume on Thursday (August 28) and be featured each consecutive night including Monday, September 1 (Labor Day).

Monday: Workshops, Demonstrations & Films

Monday will offer a variety of opportunities to expand your skills with an exciting selection of workshops. Learn to make fans. Try your hand at Ikebana, the Japanese art of flower arranging. Dollmaking and origami (paper folding) workshops will also be available.

Demonstrations will include Japanese cooking, and the symbolic tea ceremony. Reservations are required for workshops and space is limited. Reservations will be accepted beginning August 11. Call 577-5125.

Tuesday: Japan Today

A special day for the high-tech aficionado. See and hear all about the latest in Japanese technology and the fascinating world of transformer toys! Tuesday is a must for kids and gadget lovers. For those dreaming of a trip to Japan, come and visit with a travel agent and view films on modern Japan.

Wednesday: Japanese Style

For those who love everything oriental, this is the day. There will be lectures, demonstrations and fashion shows. Learn about the oriental influence in interior design, and tips on how to use classic Japanese style at home. Fashion shows will contrast the traditional symbolic clothing of Japan, with the latest design influence from Japanese shores.

Thursday: Japanese Garden

Beautiful Seiwa-En is the highlighted feature on Thursday and special guided tours will be available. Ben Oki, bonsai master, will give a lecture/demonstration. The Bonsai Society of St. Louis will hold a sale in Flora Gate, for those who want to try their hand at this fascinating art. There will also be an illustrated lecture on the shrines and temples of Japan. Come and learn how to adapt Japanese influence in your natural world.

Friday: Children's Day

Everything Friday is planned for the young and young-at-heart. There will be entertainment by Talent Education of St. Louis suzuki players and the popular Candy Man from EPCOT. The younger members of the St. Louis Budokai Judo Club, and young Kabuki dancers will show off their skills. Kids can watch video letters from their Japanese counterparts showing how children live day-to-day in Japan. Young hands and minds will learn paper carp making, origami, and Japanese folkdancing. "Chopsticks & Folktales" will teach them how to use chopsticks and explain food in Japanese culture. Reservations for workshops will be open on August 11. Call 577-5125.

The Final Three-Day Weekend

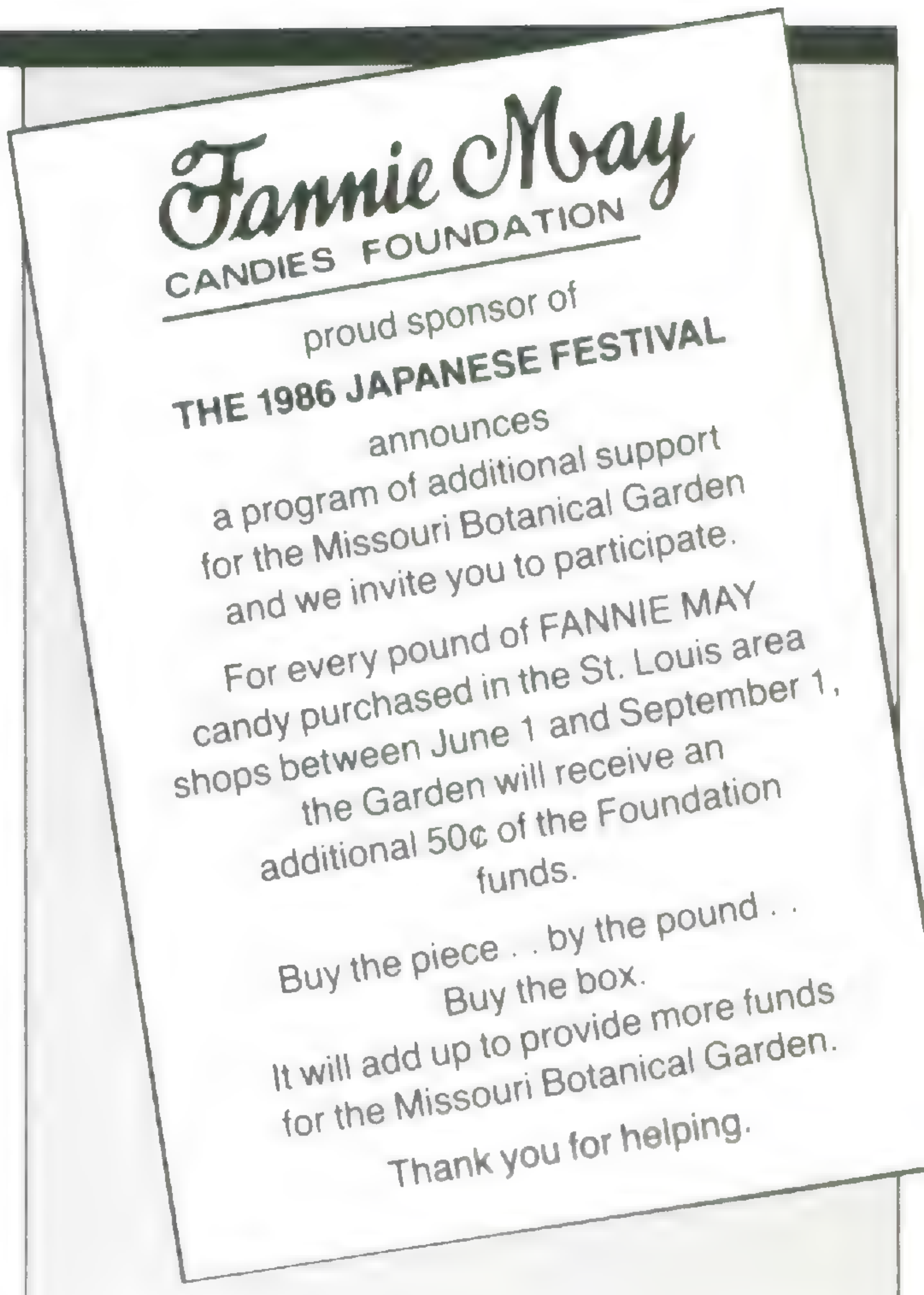
The final weekend, Saturday, Sunday and Labor Day, will focus on the performing arts of Japan. Kabuki solo dancers will perform during the day and combine for a grand finale Saturday and Sunday and Monday evenings. Matsukoto Hanayagi, a highly respected Kabuki instructor from Japan will be making her United States premiere this weekend.

The popular Minyo Dancers will perform, and beautiful Sachiyo Ito will present both classical and contemporary Japanese dances.

A special surprise performance by a popular musical group is also scheduled.

Weekend (including Labor Day) admission to the Festival is $3 for adults (age 13-64), $1 for senior citizens, and free for children 12 and under and Garden Members. Weekday admission is $2 for adults. Children, senior citizens and Garden Members enjoy complimentary admission during the week.

"The Face of Japan: Yesterday and Today," will be a continuing parade of Japanese culture, education and entertainment. You won't want to miss a single moment.



Fannie May
CANDIES FOUNDATION

proud sponsor of
THE 1986 JAPANESE FESTIVAL
announces
a program of additional support
for the Missouri Botanical Garden
and we invite you to participate.

For every pound of FANNIE MAY
candy purchased in the St. Louis area
shops between June 1 and September 1,
the Garden will receive an
additional 50¢ of the Foundation
funds.

Buy the piece . . by the pound . .
Buy the box.
It will add up to provide more funds
for the Missouri Botanical Garden.

Thank you for helping.

Counter cards like the one above are placed in all 13 area Fannie May Candy Shops.

Not only did Fannie May Candies Foundation agree to exclusively underwrite the costs of the 1986 Japanese Festival, they took their generosity two steps further.

On June 1, they announced that they would provide an additional 50¢ to the Garden for every pound of candy sold in their St. Louis shops this summer.

On June 17, they provided another incentive to local candy lovers. The Foundation pledged $1 to the Garden for every box of "Festival Assortment" candy sold in St. Louis.

Dr. Peter H. Raven, garden director, praised the Foundation's generosity. "Since late 1984, when Fannie May Candy Shops began operation in St. Louis, the Foundation has given over $1 million to St. Louis charities," he said.

Raven quipped that "Not only is the connection between flowers and candy a natural, everyone has the perfect excuse for enjoying this excellent candy. When asked, you can just say you are eating it for a good cause."

The promotion is valid in any of the 13 area stores between June 1 and September 1. Fannie May Candy Shops are located at Lambert-St. Louis International Airport, 722 Locust Street, St. Louis Centre, Plaza Frontenac, Galleria, Chesterfield Mall, Northwest Plaza, 12374 Olive Boulevard, Northland Mall, Crestwood Plaza, West County Center, South County Center and Alton Square Shopping Center.

From Ending World Hunger To Award Winning Urban Gardens:

SCHOOL PARTNERSHIP PROGRAM

The school Partnership program offers students opportunities to see the Missouri Botanical Garden in new and interesting ways. This special partnership between the St. Louis public schools and the Missouri Botanical Garden is coordinated through the Garden's education department. The Partnership program offers a variety of topics for study, including: Insectivorous plants; Sumi-e (oriental painting); Botanical illustration; World Cultures; Global Issues; and Youth Urban Gardening.

This year a new partnership was formed with Stowe Middle School, which allowed students to visit the Garden's library and herbarium, and then to use the St. Louis Public Library's main branch for an in-depth study. All Partnership programs combine aspects of the school's curriculum with a visit and study of specific garden collections and exhibits.

Many of the Partnership programs bring students of diverse backgrounds together for shared learning experiences. The Global Issues program bring city and county high school students together for a day of environmental problem solving. The three programs offered are: The Global Energy Crisis; Tropical Deforestation; and World Hunger.

Dr. Peter Raven spoke to the high school students about the problems in the world's tropical rainforests, and students later worked together in a debate/discussion activity to try and solve the environmental problems of tropical deforestation.

In the World Hunger program students cooperated in a simulation activity (Baldicer) which enabled them to understand the importance of working together to solve the hunger problem. An economical, heart-healthy lunch was served to the students while a dietician spoke to them about making healthy choices in their own eating habits. Students were encouraged to think of ways to help solve the problems of world hunger. By working together to solve the world's problems, students learn the facts of the global environmental situation, while at the same time they learn to cooperate with students from different schools.

Students from Elias Michael School for the Orthopedically Handicapped work together with gifted students from Stix Investigative Learning Center in their award-winning "urban garden" site. At the end of the school year, students enjoy the fruits of their labor by having a cooperative garden banquet.

One popular Partnership program is the Youth Urban Gardening project. Teachers from city schools come to the Garden for training workshops on gardening, and later their students are involved in three special urban gardening lessons. Activities range from a Henry Shaw puppet show for pre-schoolers, to an urban gardening role play for older students where the kids are involved in organizing an urban garden using groups such as the University Extension Center and Gateway to Gardening. Both organizations have been very supportive of the urban gardening project. Students learn the basics of gardening and the specific problems and responsibilities of developing a garden in the city. All grade levels have a planting activity which allows them to start seedlings indoors. As the spring progresses, teachers identify lots of nearby vacant spaces which can be used for gardening.

Two schools involved in the Youth Urban Gardening Project won awards for their work. Pierre Laclede Elementary School was chosen from over 700 applicants by the National Gardening Association to receive a grant which included all the tools and seeds they would need for their garden. Laclede School turned a vacant lot into a beautiful fenced-in productive garden in one year.

In 1985, a special Operation Brightside award was given to Stix Investigative Learning Center (a Magnet school), and Elias Michael school for the orthopedically handicapped. The two schools worked together on the garden project. The schools were awarded a neighborhood beautification award of $1000.00. The gifted students from Stix school worked together with the handicapped students from Michael school to produce a successful garden plot which yielded enough produce for a garden banquet at the end of the year. This year the same schools were awarded a grant from the National Gardening Association. They now have all the tools and seeds they need for another year of successful gardening.

From growing tomatoes to learning about the destruction of the world's tropical rainforests — the Partnership program offers students of all ages a unique look at what they can learn at the Missouri Botanical Garden.

— Sarah Coppersmith,
Education Instructor

Gardening In St. Louis

Water Lilies

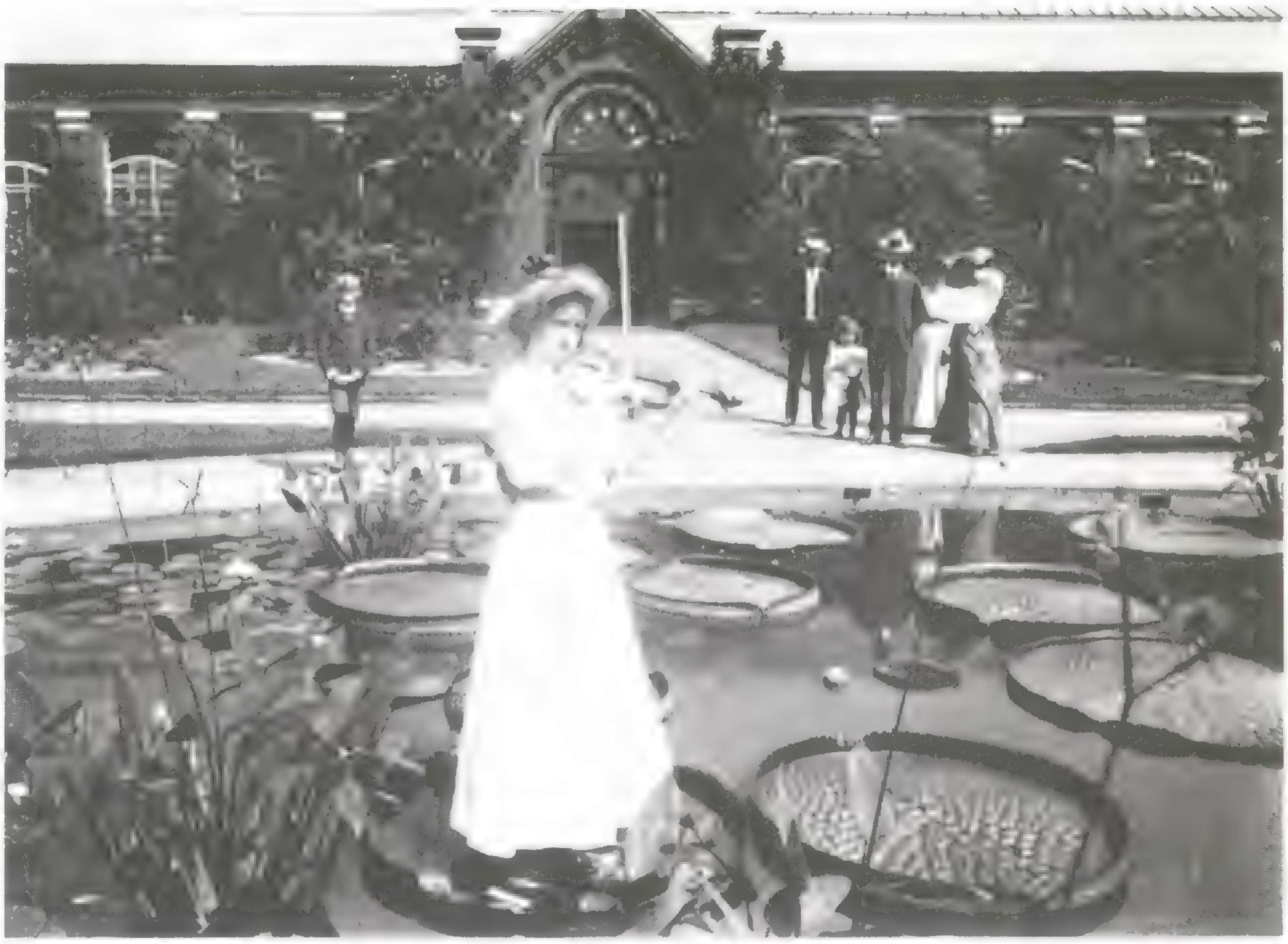
A favorite summer attraction at the Missouri Botanical Garden is the array of tropical water lilies robust in the hot sun in the pools by the Linnean House and east of the Climatron. The lilies are remarkable, not only for their striking colors, but also because of the surprising mechanisms for exchanging pollen that some exhibit, and because the Missouri Botanical Garden is the original home of several popular hybrid cultivars.

An ongoing project is to investigate the classification and history of the water lilies that we are so fortunate to possess. This summer we are celebrating the lilies with an historical exhibit and are honored that among our special visitors will be members of the Water Lily Society attending the Society's second annual symposium being held in St. Louis August 1-3.

In 1894, the Garden began cultivating the South American *Victoria* water lilies, which are readily recognized by the upturned margins on their enormous leaves. The species currently present is *Victoria cruziana,* a native of Argentina, Paraguay, and Bolivia. *Victoria cruziana* is one parent of the hybrid *Victoria* 'Longwood Hybrid', another inhabitant of our pools. The other parent is the Amazonian *V. amazonica,* a species not conveniently cultivated at this latitude. The boat-like leaves on the *Victoria* lilies have a photographic history spanning almost a century. They are tempting platforms for novelty photos, although they are not suitable for standing — the photos were staged.

Surprisingly, the victorias are started from seeds each year, attaining their impressive size through rapid growth. The large flowers open nocturnally, which at one time led to the lily pools being illuminated and open to visitors on balmy summer evenings.

Closely related to *Victoria,* but coming from the opposite side of the world (Japan, China to India), is the genus *Euryale,* consisting of just one species, *E. ferox,* also known as "the bristly water lily." When visiting the lily pools don't overlook its leaves, which must be counted among the prettiest leaves in the plant world. The *Euryale* leaf resembles an aerial view of a mountainous land of green and purple.



Victoria has been cultivated at the Garden since 1894. The large leaves have been used for novelty photos, such as the view above, for more than a century. The violinist is actually standing on a wooden platform placed on the leaf.

Most of the water lilies at the Missouri Botanical Garden belong to the genus *Nymphaea,* which is made up of about 35 species distributed around the world, mainly in the tropics.

Nymphaea odorata may be familiar as a wild flower here in Missouri. Another well known species, the night-blooming *N. lotus,* was the lotus of ancient Egypt, although it was replaced in this role by

Nelumbo long ago.

The flowers of some species of *Nymphaea,* including at least one that is ancestral to hybrids on display, have a carnivorous means of exchanging pollen. When the flower opens, a pool covering the stigma (the organ that receives incoming pollen) is exposed in such a way that insect visitors fall in and drown. Pollen washes onto the stigma from the victim, which is digested. On the second day, inward bending of the stamens (the organs that produce pollen) blocks the pool, allowing insect visitors to escape after a dusting with pollen to possibly perish in the pool of a different flower, thereby transferring pollen.

The Missouri Botanical Garden rose to prominence as a breeding center for tropical *Nymphaea* chiefly through the crossing program carried out by George H. Pring, superintendent of the garden from 1928 to 1963, many of whose hybrid cultivars remain popular. Among them are *Nymphaea* 'Aviator Pring', *N.* 'Bagdad' *N.* 'Director George T. Moore', *N.* 'Isabelle Pring', *N.* 'Mrs. George H. Pring', *N.* 'St. Louis', and *N.* 'Persian Lilac'. The hybrids are largely interrelated, many being parents of others, so that really very few wild species, most of them indigenous to tropical Africa, are parental to the numerous hybrids. Mr. Pring's detailed notes allow us now to reconstruct the ancestry of most of his hybrid cultivars.

As an example, the large white *N.* 'Mrs. George H. Pring' crossed with the smaller yellow *N. stuhlmannii* (often called *N. burttii*) yielded the large light yellow *N.* 'St. Louis'; this crossed with the small yellow *N. sulfurea* gave the yellow pygmy *N.* 'Aviator Pring', named for George Pring's son Bradford, who died in a military aviation accident.

As the first step in developing a new hybrid, Mr. Pring brought about cross pollination by inserting stamens from the "male" (pollen) parent into flowers on the "female" (seed) parent from which the original stamens had been removed in order to prevent self-pollination. The newly pollinated flower was then enclosed in a gauze bag and allowed to bend under the surface of the pool for about three weeks while the pod formed from the flower and while seeds matured inside the pod.

When the ripe pod broke open at the surface of the water the seeds fell into the bag, which allowed their easy collection for further soaking in a jar of water to remove a fleshy covering. Seeds recognized as probably viable by their sinking in the jar were sown indoors for early growth through the winter; the following summer the resulting hybrid plantlets were set outside in the muddy bottoms of the lily pools (the pools have concrete bottoms now). The new hybrids came into flower later the same season, no doubt a thrill for the developer and garden visitors alike.

An article on the water lilies at the Missouri Botanical Garden would be incomplete without a word about the present. The lilies are thriving in the capable hands of horticulturist Mary Smith, whose magical touch is instantly apparent upon visiting the lily pools. Mary, who has been in charge of the water lilies for almost two years, is presently tackling the problem that *Victoria cruziana* is reluctant to propagate by self-pollination. Success with this challenge will make cultivating it at the Garden far more convenient. When satisfied with progress on the *Victoria,* she hopes to try some crosses of her own, taking advantage of species and hybrids that have become available since Mr. Pring's time. Inside tip: surprises may begin to appear in the lily pools. — *George K. Rogers, Ph.D.*
Horticultural Taxonomist

ST. LOUIS URBAN GARDENING FAIR

GATEWAY TO
GARDENING
ASSOCIATION

The popularity of home vegetable gardening is increasing. In fact, one recent study showed it to be the most popular hobby nationwide. If you are harvesting corn, tomatoes, even flowers and herbs from your garden, you might want to pit your own "homegrown" against other St. Louis gardeners.

On August 2 and 3, 1986, the fourth annual St. Louis Urban Gardening Fair will be held in Orthwein Floral Hall. Entrants in three age categories — youth (18 and under), adult (19-64), and senior (65 and over) can participate in five different contests. These include vegetables, fruits, herbs, flowers and canned goods. Within each contest are many divisions for specific vegetables, flowers, etc.

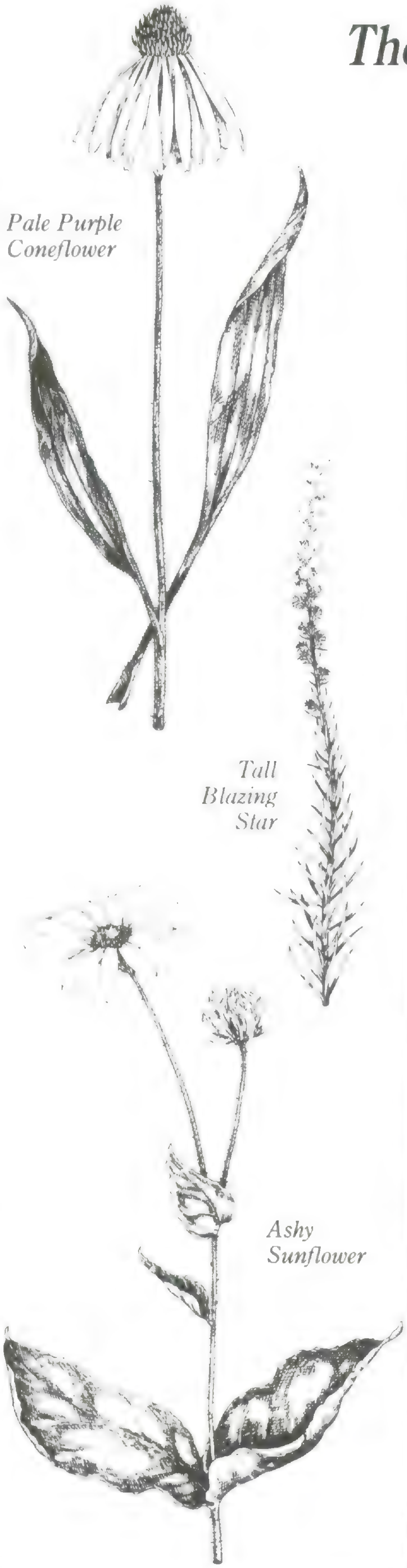
Participants and the general public will be able to view entrants and winners. During the two days of the fair, educational mini-workshops will be conducted on topics ranging from gardening techniques to food preservation.

The St. Louis Urban Gardening Fair is sponsored by Gateway to Gardening Association in cooperation with the Missouri Cooperative Extension Service, Urban League, Land Reutilization Authority, and Missouri Botanical Garden.

For information detailing specific categories and judging criteria, please contact St. Louis Urban Gardening Fair, Missouri Cooperative Extension Service, 367-2588 or Gateway to Gardening, 432-5074.

News From Shaw Arboretum

The Experimental Prairie



Visitors to Shaw Arboretum now have the opportunity to observe on a small scale the once vast prairie landscape which covered the central third of our continent. They can now experience the robust prairie grasses and the stunning beauty and diversity of wildflowers, which the pioneers encountered when they settled this region.

Since its beginning in 1980, the Experimental Prairie is slowly maturing with the addition of thousands of plants grown in the greenhouse and laboriously transplanted into small plots in the 68 acre prairie. Periodic burning of the prairie in April has eliminated most of the alien plants and trees and increased the vigor of the native plants. Haying was used as a management technique on two of the five units of the prairie in 1985. Individual units will be hayed, rested, or burned on a rotating schedule so different management techniques may be observed each year.

Of special interest this year is a 6,000 square foot area in the southwest corner of the prairie along the service road, just downhill from the Trail House. This planting contains Tall Blazing Star by the thousands which will be ablaze with their tall magenta colored flower spikes in late July and early August. Intermixed with the Blazing Star are Yellow Coneflower, Pale Purple Coneflower, Compass Plant, Sweet Coneflower, Prairie Coreopsis, Rattlesnake Master, Rosinweed, and Little Bluestem. This planting was produced by broadcasting seed directly into a specially prepared site, in which weed competition was greatly reduced by growing sorghum-sudan grass hybrid the previous year. This tall hybrid creates a dense shade that retards weed growth.

Since 1980, more than 30,000 seedlings of 86 species of grasses and wildflowers have been transplanted into the Experimental Prairie. Including the 74 or more species of plants that were already growing on the site, the keen observer may find over 160 species of plants on the prairie.

July, August, and September are the months of peak blooming on the prairie. The tall grasses reach their full height (up to 10 feet) in August. A leisurely hike on the scenic 2/3 mile trail through the prairie is a sure tonic for body and mind. The Arboretum's extended hours (7 a.m. to 1/2 hour past sunset year-round) allow the visitor to avoid the mid-day heat in July and August.

— *William A. Davit*

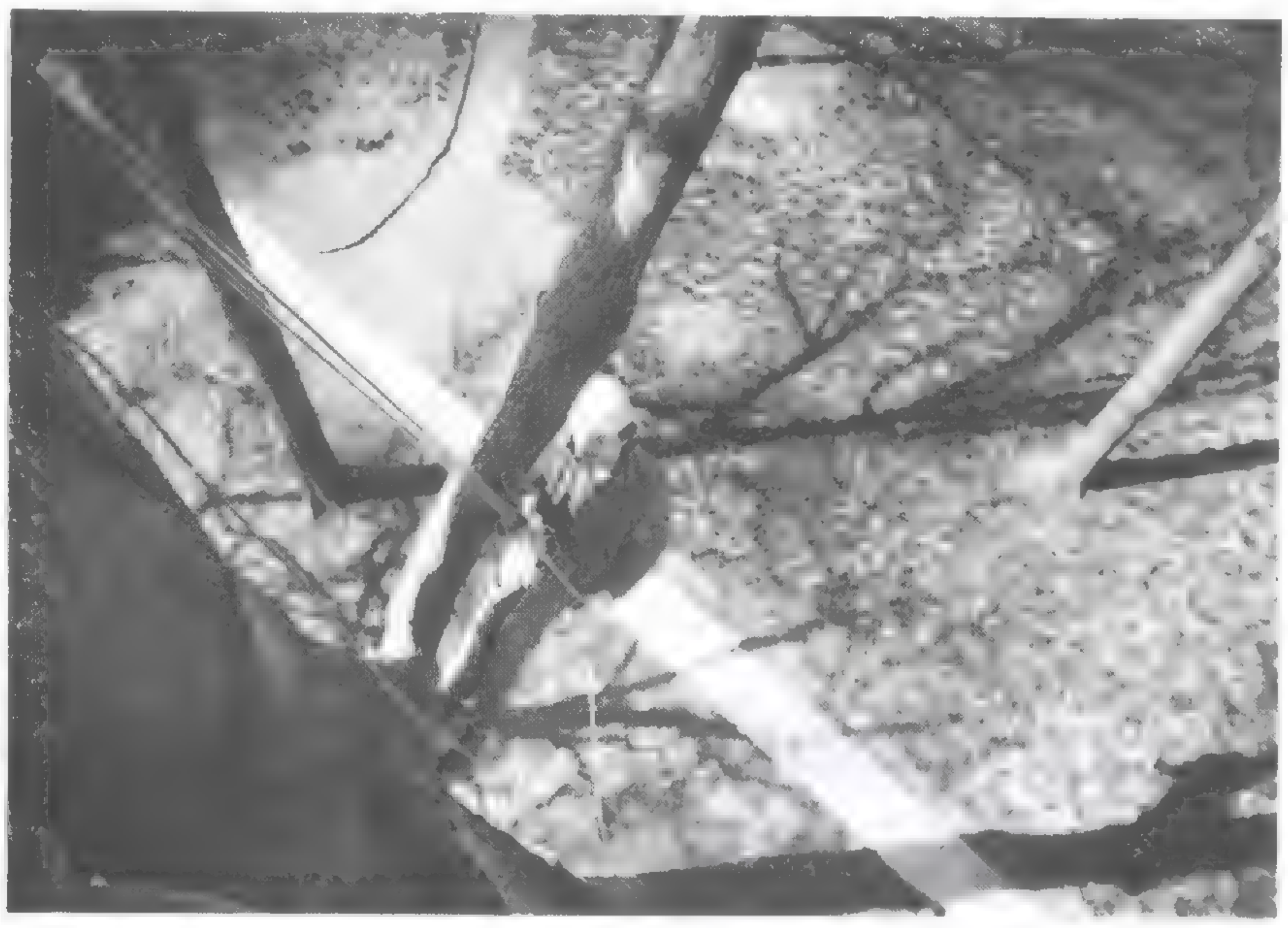
Earlier this year, a new feature was added to Pinetum Lake at Shaw Arboretum. Ray and Amanda Garlick, longtime employees and now very active volunteers, donated the funds for a bridge across the headwaters at the north end of the lake. Pictured above on the new bridge are, from left to right, Arboretum employees Glenn Beffa and Johnathan Watts, Ray Garlick, Arboretum Superintendent John Behrer, and Amanda Garlick.

CONSERVATION PROGRAM PROTECTS OLD TREES

Some of the Garden's oldest trees, many of which date from the time of Henry Shaw, are getting some extra protection from Mother Nature thanks, in part, to a $25,000 matching grant from the federal Institute of Museum Services.

Some of the towering oak and sassafras trees near Tower Grove House received lightning protection in the form of heavy copper cables attached to their sides. The project also calls for pruning dead limbs and injecting fertilizers and insecticides into the ground around the trees. With a little luck, these trees will be around for another hundred years.

— photos by John Dengler, *St. Louis Globe-Democrat*



PARENTING FAIR AT THE GARDEN

While some people dedicate years of their lives training or studying for their professions, few are prepared for what may be one of life's toughest jobs — that of being a parent. If you are an expectant, new or experienced parent with questions about your child's development, about how to handle sibling rivalry, or about what is "normal" behavior for a child at a particular age, the Parenting Fair may be able to provide the answers.

On August 9 and 10, 1986, the Garden will be the site for the third annual Parenting Fair. The event will take place in the air-conditioned Ridgway Center. There will be hourly seminars on current topics from pre-natal experiences to the adolescent years, special events, and children's activities. Dozens of booths will represent hospitals, retailers with products and services related to parenting, non-profits, and educational organizations.

The Parenting Fair will open with a panel discussion Saturday on "Parenting in the 1980's — What's Your Type?", moderated by Armand E. Brodeur, M.D., honorary chairparent, and will focus on the fact that the traditional definition of the family is changing to include the blended, divorced, and single parent family as well as "Mom and Dad and the two kids."

Information on the light and serious side of parenting will be presented by some of St. Louis' leading experts on parenting. Seminars, which are scheduled from noon to 5 p.m. each day, will include subjects of general interest such as "Father Roles in the '80's — Are They Really Changing?" presented by Kenneth Weintraub; "Helping Children Handle Fears in Today's World" discussed by Chris Brown, a McCluer North High School educator who was a finalist in the Teacher in Space Program; "Promoting Your Family's Self-Esteem" presented by Roger Stock, counselor with Kids In The Middle; and "Pets and Children, How to Raise Both Together."

Special to the fair this year will be a performance on Sunday afternoon for the entire family to enjoy. Greg and Steve, a singing duo, whose performances have captivated children all over the United States, will provide St. Louis parents and their children with a fun-filled musical show. Throughout the weekend-long event, clowns, mimes, magicians, characters from Southwestern Bell and Six Flags will also entertain and delight both parents and children adding to the festivity of the fair and the celebration of parenting.

Admission to the Parenting Fair is free, although visitors who are not Garden Members will pay regular admission to the Garden. Free child care (limited to 1-4 year olds and for up to 1 1/2 hours) will be available both days. The fair will be open to the public from 10 a.m. to 5 p.m. on Saturday and Sunday.

Sponsored by Citicorp, Dierbergs Markets, KMOX Radio, Pet Incorporated, St. Louis Post-Dispatch, and Southwestern Bell Telephone, the Parenting Fair is presented by Kids In The Middle and Progressive Youth Center. All proceeds benefit these two non-profit youth and family service agencies.

JULY-AUGUST

HIGHLIGHTS

JULY 7, 21 and AUGUST 4, 18/*Mondays*

Plant Clinic

9 a.m.-12 p.m., Ridgway Center. Free help for plant lovers. Diagnosis of problems and plant identification. Sponsored by the Garden, Missouri Cooperative Extension Service, Missouri Department of Conservation and the St. Louis County Department of Parks and Recreation.

JULY 24/*Thursday*

Henry Shaw's Birthday Celebration

10 a.m.-3 p.m., Garden grounds. Clowns, balloons, party hats and puppet shows for the young-at-heart. Cotton Candy Concert featuring the Young Audience Quartet on Spoehrer Plaza at 1 p.m. Free with regular Garden admission. In the evening, Members Only can enjoy dinner on the lawn beside Tower Grove House. Reservations are required and space is limited. Watch your mail or call 577-5199 for details. *(See story on page 14.)*

JULY 2, 9, 16, 23, 30

Wednesdays

Music Fest

8 p.m., Spoehrer Plaza. Concerts under the stars. Chairs are provided but lawn chairs are welcome. Tickets are $2 each and can be purchased at the door. A cash bar will be available.

JULY 9, 16 and AUGUST 6, 13/*Wednesdays*

Gardeners' Walks

6:30 p.m.-8 p.m. Individualized tours of some of the Missouri Botanical Garden's special gardens given by the gardener-in-charge. $7 Members, $10 nonmembers. Reservations required by calling 577-5140.

AUGUST 12 and 19

Tuesdays

Members' Evening Garden Tour

6 p.m., Garden grounds. Pools, ponds and fountains are the focus of these special tours of the Missouri Botanical Garden For Members Only. Reservations required and accepted only August 4, 5, 6 and 7 between 9 a.m. and noon by calling 577-5199. *(See story on page 14.)*

JULY 25 and AUGUST 1

Fridays

Dancing on the Plaza

8 p.m. to midnight, Spoehrer Plaza. Let's go dancing! It's Friday night and the outdoor Spoehrer Plaza is lighted for a party. $5 per person. Cash bar available.

AUGUST 23-SEPTEMBER 1

11th Annual Japanese Festival

Ten full days of excitement and entertainment celebrating the culture of Japan. Opening weekend, August 23 and 24, features the ever popular Taiko Dojo drummers and the martial arts experts. Through the week, special days are planned focusing on children's activities, gardening in Japan, the culture of modern Japan and more. The closing weekend, August 30, 31 and September 1 (Labor Day), will feature the performing arts. Admission on weekends and Labor Day is $3 for adults, $1 for senior citizens and free for children 12 and under. Admission through the week is $2 for adults and free for senior citizens and children 12 and under. Members admitted without charge. *(See story on page 3 for more details.)*

JULY-AUGUST

DAY-BY-DAY

JULY

For detailed information on courses or the Henry Shaw Academy, call the Education Department at 577-5140.

2 **Music Fest**
8 p.m., Spoehrer Plaza. The Jacques Farache Latin Jazz Quintet. *(See Highlights.)*

4 **INDEPENDENCE DAY**

5 **Bats: Myth and Reality**
11 a.m. & 2 p.m., Shoenberg Auditorium. The world of bats and their important contributions are explored in a fascinating slide presentation.

5-6 **Daylily Society Show**
12 p.m.-8 p.m. Saturday and 9 a.m.-8 p.m. Sunday, Orthwein Floral Hall. See the very best of these beautiful plants, including the "queen for a day." Free with regular Garden admission.

6-12 **Colorado Mountain Ecology**
A week at The Nature Place at Pike's Peak in Colorado studying the mountains, fossils, birds and plant life. Call 577-5147 for details.

7-11 **The World Around Me**
9 a.m.-3 p.m., Ridgway Center. A week of exploration for children ages 7-10 as part of the new Henry Shaw Academy. $50 per person. Call 577-5140 for details.

7 **Plant Clinic**
9 a.m.-12 p.m., Ridgway Center. Free help for plant lovers. *(See Highlights.)*

8-12 **Ozark Waterways**
10 a.m. Tuesday to 3 p.m. Saturday. Hike and canoe along Bryant Creek learning about the unique plants and animals of the Ozarks. For children ages 13-16 as part of the Henry Shaw Academy. $100 per person. Call 577-5140 for details.

9 **Gardener's Walk**
6:30 p.m.-8 p.m. A specialized tour through the Gladney and Lehmann rose gardens. *(See Highlights.)*

9 **Music Fest**
8 p.m., Spoehrer Plaza. The Black Music Society's Jazz Repertory Ensemble. *(See Highlights.)*

12 **Festival Day**
10:30 a.m. to 12 p.m., Ridgway Center. Celebrate the Japanese festival of the stars, Tanabata. For children ages 4-6. $6 Members, $7 non-members. Call 577-5140 for details.

12-20 **Cactus Society Show**
9 a.m.-8 p.m. daily, Orthwein Floral Hall. Exotic and unusual cacti and succulents from the Henry Shaw Cactus Society on display. Free with regular Garden admission.

14-18 **Planet Earth Week I**
9 a.m.-3 p.m., Ridgway Center. Investigate the "building blocks" of life — sun, air, water and earth. For children ages 10-13 as part of the Henry Shaw Academy. $50 per person. Call 577-5140 for details.

16 **Music Fest**
8 p.m., Spoehrer Plaza. The Gateway Brass Quintet. *(See Highlights.)*

Gardener's Walk
6:30 p.m.-8 p.m. A specialized tour of the Rock Garden in front of the Mediterranean House. *(See Highlights.)*

19 **The Land of the Cactus**
10:30 a.m.-12 p.m., Ridgway Center. For children ages 4-6. $6 Members, $7 non-members. Call 577-5140 for details.

Plants Underwater
1:30 p.m.-3 p.m., Ridgway Center. For children ages 4-6. $6 Members, $7 non-members. Call 577-5140 for details.

21 **Plant Clinic**
9 a.m.-12 p.m., Ridgway Center. Free help for plant lovers. *(See Highlights.)*

21-25 **Planet Earth Week II**
9 a.m.-3 p.m., Ridgway Center. Exploration of the interaction of plants and animals in different environments for children ages 10-13 as part of the Henry Shaw Academy. $50 per person. Call 577-5140 for details.

23 **Music Fest**
8 p.m., Spoehrer Plaza. The Red Lehr Dixieland Trio. *(See Highlights.)*

24 **Henry Shaw's Birthday Celebration**
10 a.m.-3 p.m., Garden grounds. Free with regular Garden admission. *(See Highlights.)*

Henry Shaw Birthday Dinner
5 p.m., Grounds near Tower Grove House. A country supper complete with banjo and guitar music. For Members Only. Reservations accepted by mail only.

25 **Dancing on the Plaza**
8 p.m. to 12 a.m., Spoehrer Plaza. Dance to the pop and contemporary sounds of Ritz. $5 at the door. Cash bar. *(See Highlights.)*

26 **Lotus: From Mud to Bud**
10:30 a.m.-12 p.m., Ridgway Center. For children ages 4-6. $6 Members, $7 non-members. Call 577-5140 for details.

Jack and the Beanstalk
1:30 p.m.-3 p.m., Ridgway Center. For children ages 4-6. $6 Members, $7 non-members. Call 577-5140 for details.

Picnic Supper & Prairie Tour
5 p.m.-8:30 p.m., Shaw Arboretum. Enjoy a picnic supper outdoors at the Arboretum followed by a sunset tour of the Experimental Prairie. $8 Members, $10 non-members. Reservations required by calling 577-5138.

30 **Music Fest**
8 p.m., Spoehrer Plaza. A concert under the stars by City Heat. *(See Highlights.)*

JULY-AUGUST

DAY-BY-DAY

AUGUST

1 **Dancing on the Plaza**
8 p.m.-12 a.m., Spoehrer Plaza. Dance to the music of Marty Abdullah and the Expressions. $5 at the door. Cash bar. *(See Highlights.)*

2 **Iris Society Sale**
10 a.m.-5 p.m., Beaumont Room. Annual Greater St. Louis Iris Society Rhizome Sale to benefit the Garden.

Picnic Supper & Prairie Tour
5 p.m.-8:30 p.m., Shaw Arboretum. Enjoy a picnic supper outdoors at the Arboretum followed by a sunset tour of the Experimental Prairie. $8 Members, $10 non-members. Reservations required by calling 577-5138.

2-3 **Urban Gardening Fair**
12:30 p.m.-7:30 p.m. Saturday and 9 a.m.-4 p.m. Sunday, Orthwein Floral Hall. A country fair atmosphere for city gardeners featuring judging of local entries of fruit, vegetables and flowers. Free with regular Garden admission. *(See page 7.)*

4 **Plant Clinic**
9 a.m.-12 p.m., Ridgway Center. Free help for plant lovers. *(See Highlights.)*

6 **Gardener's Walk**
6:30 p.m.-8 p.m. A specialized tour of the Swift Family Garden. *(See Highlights.)*

9-10 **Parenting Fair**
10 a.m.-5 p.m., Ridgway Center and Spoehrer Plaza. Learn the latest in parenting via booths, lectures, entertainment and more. Free with regular Garden admission. *(See page 9.)*

12 **Members' Evening Garden Tour**
6:30 a.m., Garden grounds. For Members Only. Reservations required. *(See Highlights.)*

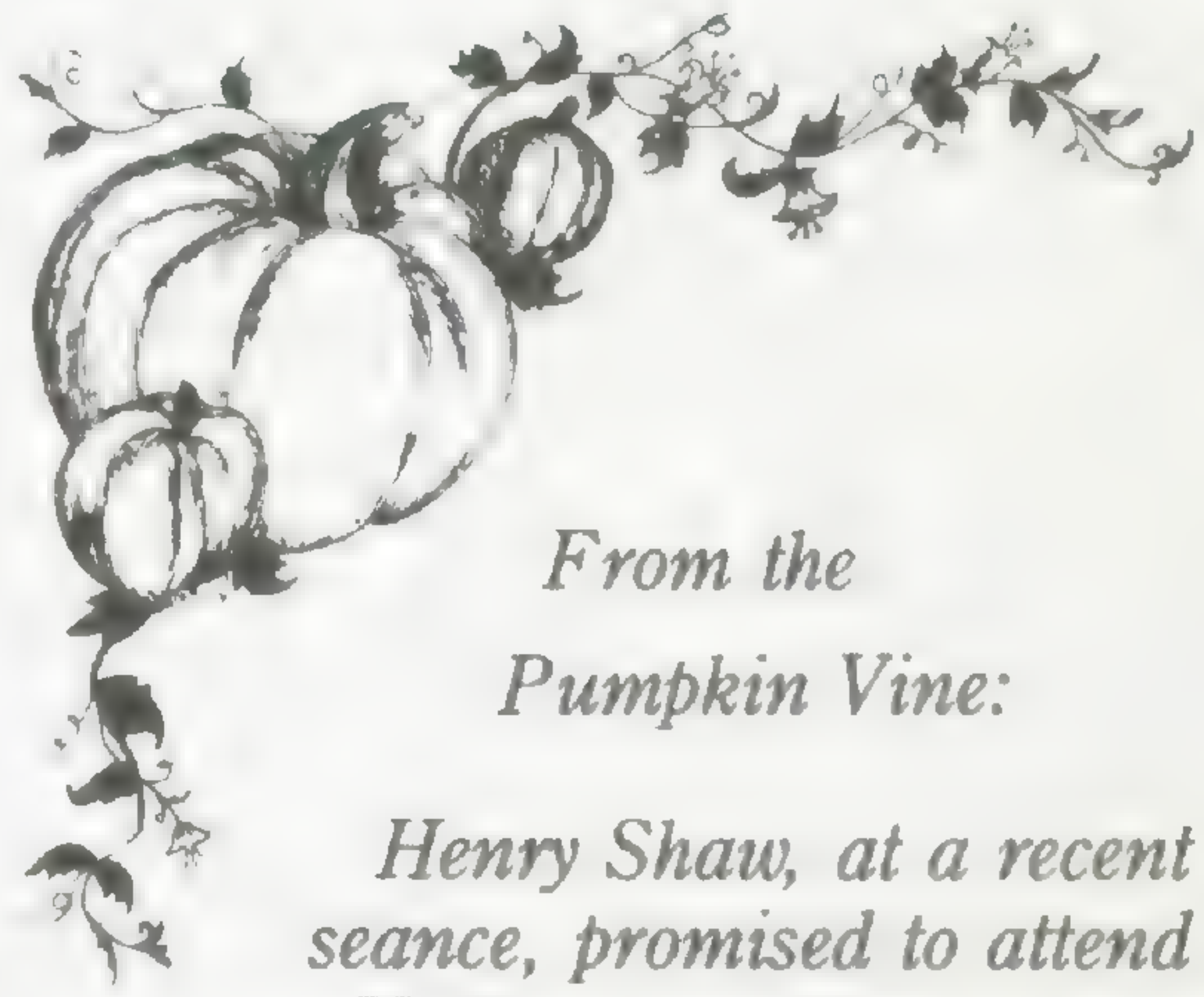
13 **Gardener's Walk**
6:30 p.m.-8 p.m. A specialized tour of the Scented and Hosta Gardens. *(See Highlights.)*

18 **Plant Clinic**
9 a.m.-12 p.m., Ridgway Center. Free help for plant lovers. *(See Highlights.)*

19 **Members' Evening Garden Tour**
6:30 a.m., Garden grounds. For Members Only. Reservations required. *(See Highlights.)*

23 **11th Annual Japanese Festival**
Through September 1, 9 a.m.-8 p.m., Ridgway Center and grounds. "The Face of Japan: Yesterday and Today" is the theme of this year's festival. *(See Highlights and story on page 3 for details.)*

One of the highlights of Volunteer Recognition Evening on May 7, was the unveiling of an oil portrait of Paul Kohl, a 65-year employee of the Garden and Answer Service volunteer, who died last summer. Pictured above are Garden Director Peter Raven, left, and artist Tito Gay. The portrait will be hung in the Answer Service room in the Administration Building.



From the
Pumpkin Vine:

Henry Shaw, at a recent
seance, promised to attend
a Halloween celebration on
October 26, 1986.
Adults admitted with a child.

Hauntingly yours,
Hepatica, Witch

GENETIC ENGINEERING DAY

On Tuesday, July 15 and 22, students, their parents and teachers will have an opportunity to explore genetic engineering as a natural science and be allowed first hand to explore the career opportunities that are available in this field. A lecture/demonstration of genetic engineering at the Missouri Botanical Garden by a research scientist from Monsanto will be followed by an exhibit on genetic engineering at the St. Louis Science Center and a tour of the Monsanto Research facilities at Chesterfield. The lecture and bus tour are free and open to the public, but space is limited and reservations are required. Reservations for the bus tour should be made before July 10 by calling the St. Louis Science Center at 289-4409.

Conservation Center Awarded Grant

The library's Shoenberg Conservation Center, recently renamed to reflect a generous donation by the Shoenberg family, received a $10,000 grant from the National Endowment for the Arts to support the conservation treatment of selected books from the library's rare book collection.

Included in books to be conserved is the *Curtis Botanical Magazine,* the oldest illustrated botanical periodical, issued since 1787 and containing important plant descriptions as well as hand-colored illustrations.

The Anne L. Lehmann Rose Garden, since 1976 one of the Missouri Botanical Garden's most popular features, was ablaze with color in June as the garden's more than 4,000 roses delighted the eyes and noses of visitors. The garden was selected for the All-America Rose Selections Public Rose Garden Award in 1983 and is named for Mrs. Lehmann who, with her late husband John S. Lehmann, has been one of the Garden's most ardent supporters.

Center, right: The Japanese American Citizens' League (JACL) recently presented a check for $1,000 to the Garden for improvement and maintenance of the Japanese Garden. Pictured above, from left to right, are Ed Tsugita, George Sakaguchi, president of the JACL, Riki Maru, and Alan Godlewski, chairman of the horticulture department.

Bottom, right: On May 20, Garden Director Peter H. Raven presented a certificate to Jean Crowder, center, president of the Tower Grove House Auxiliary, congratulating the Auxiliary on its tenth anniversary. Observing the presentation is Norma Silber, manager of the house.

FROM THE MEMBERSHIP OFFICE

Costa Rica Travel Report

A happy group of Garden Members returned from a most successful trip to Costa Rica. They toured the amazing national parks of that tiny Central American country. The Missouri Botanical Garden and Betchart Expeditions sponsored this informative and exciting tour in April. The group was a fun-loving, diverse one with participants ranging in age from 11 to 73.

One exuberant participant, Carol Taxman, a Garden Guide and travel enthusiast wrote: "The Costa Rica National Parks Expedition from which I have just returned was one of the best experiences I have had in either travel or education. The entire two weeks were well organized, reasonably paced, with delightful accommodations. I cannot say enough in praise of our guides."

Garden trips are a great way to combine fun, education and meeting new friends with similar interests. Consider the Garden's travel plans in your future!

Celebrate Henry Shaw's Birthday

Some of Henry Shaw's most intimate friends will gather to celebrate his 186th birthday on Thursday, July 24. A buffet dinner will be served on the sprawling lawn surrounding Shaw's country home, the beautiful Tower Grove House. Entertainment and merrymaking will fill the evening. Dinner is $15.00 per person and is by reservation only. Return the reservation form received in the mail by July 10, 1986.

FLOWER FUND

The Flower Fund is a new designation to receive contributions specifically for our horticultural operations. Many people particularly want to contribute to the outstanding floral display we provide visitors year round both indoors and out. Tribute gifts may also be made to the Flower Fund; tribute gifts of $100 or more are recognized by a lovely inscribed Flower Fund certificate.

Pools, Ponds and Fountains

Be a part of the Members Only Evening Garden Tour on August 12 and 19. Enjoy a leisurely stroll through the Garden lead by the Garden Guides. The stroll and tour will focus on the Garden's various water forms, pools, ponds and fountains. The walking tours will begin at 6 p.m. and be about 45 minutes in length. The last tour will leave at 7:15 p.m. Reserve your space for this Members' Day by calling the Membership Office at 577-5199 between the hours of 9 a.m. and 12:00 noon on August 4 through August 7 only.

GIFT MEMBERSHIP ORDER FORM — *Please mail three weeks prior to occasion:*

☐ Birthday ☐ Other ______________________

Gift To:

NAME ______________________
ADDRESS ______________________
CITY __________ STATE __________ ZIP __________
TELEPHONE ______________________
Sign gift card: ______________________
Date Needed By: ______________________

Regular Membership $35. Contributing Membership $75.

For more information call 577-5118.

Gift From:

NAME ______________________
ADDRESS ______________________
CITY __________ STATE __________ ZIP __________
TELEPHONE ______________________
☐ Enclosed is my check for $ ______________________
☐ Please charge: VISA No. ______________________
MasterCard No. ______________________
Name as it appears on card: ______________________
Expiration date: ______________________

Please make checks payable to: Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

ARBOR DAY FOR KIDS AND DADS

Arbor Day was celebrated by Members' children bringing their dads to the Garden for a day of fun. Irene Eveland engrossed the kids and dads with such stories as the "Dancing Palm Tree" and "Why Evergreens are Ever Green." Each Member's child in attendance that day received a collector's bag with their own tree and a special kid's map that allowed them to take their dad all around the Garden. The day's activities ended with a special children's tree dedication with Muffy Murphy officiating, by giving an American Dogwood to the Garden in honor of all children of Members.

The part of the day that everyone was waiting for was just prior to the tree dedication ceremony: the "My Dad is Special" drawing. More than 100 children nominated their fathers as "Special Dad." The winner was Adam James Oleskevich of South County. Adam was the lucky winner of four tickets to a Cardinal baseball game compliments of Guarantee Electric Company and a donated gift certificate to Dierdorf & Hart's Union Station restaurant. Adam will be treating his father to a very enjoyable day on the town!

From the Garden Gate Shop

July

Summer is bursting out all over in the Garden, and the Garden Gate Shop has special summertime features.

The Henry Shaw Birthday celebration is July 24, and the Gift Shop will have available the Boehm porcelain rose named in his honor.

The Plant Shop will be featuring baskets, baskets, baskets — picnic baskets, country baskets, plant baskets, baskets for all occasions. Please come by and look at our great selection.

The feature of the month in the Gift Shop is the "Wall Flower Vase." The vase adheres to windows, doors, mirrors, and most smooth surfaces. It is the perfect accessory for cut flowers, rooting cuttings and silk flowers.

Stop by and see our many summer time favorites.

Recent Garden Bequests

Harry Lang

Anna Hahn

The Garden has received two major bequests recently. The first was from the estate of Harry Lang, which came to us on the death of Miss Elsie Becker. Mr. Lang died in 1977, leaving money for Miss Becker, with the residuary amount to come to the Garden on her death. She passed away in January of this year. Mr. Lang was a stock and bond broker with Edward D. Jones, retiring in 1963. He never married and was noted in the community for walking to work at the brokerage house on Broadway from his home in Holly Hills. According to his niece, he was "quite a character." On his 40th birthday, he rode his bike to Washington, D.C., got off, and climbed the Washington Monument, an event which was covered in the local press. His estate was divided between the Garden and Shriners' Hospital for Crippled Children.

Anna Hahn was born in 1893 and died last July. She was single and spent her life teaching shorthand at the now defunct Rubicam Business School and being very charitable. She was a Garden member since 1979 and most recently was a Henry Shaw Associate in 1981 and 1982; soon thereafter she became ill and was unable to be active. Her family came from Germany, worked hard, and invested well. Six other organizations shared in the estate.

These bequests will be used for capital needs.

Japan Week at the Garden Gate Shop

August 23-September 1

To help celebrate this week, we are featuring paper and silk fans, parasols, fabulous windsocks and kites, origami paper and an array of Japanese accessories. In the Plant Shop you will find oriental style Bonsai plants and pots, Japanese tools and lanterns plus bronze bells. Please stop by to see all our Japanese selections.

Gift Certificates, as always, are available in the Garden Gate Shop.

For Younger Members

Cooling Off

Hot. Humid. Sticky. These words describe summer days in St. Louis. July and August are usually the hottest months. Heat from the summer sun makes it hard for people to stay cool, especially during outdoor activities. Animals, too, must find ways to cool off on the hottest days. Birds seek out puddles of water to bathe in. Dogs stay cool by breathing rapidly, or panting. Bees cool their beehive by quickly fanning their wings.

How can you beat the summer heat? You could sit in a shady spot outdoors. You could stand inside a house or building that is cooled by air conditioning. Or you could create a breeze by fanning yourself with an old magazine. But one of the best — and most fun — ways to stay cool is with *water.* Water from faucets, hoses, and sprinklers. Water in swimming pools, lakes, or rivers. Water in lemonade, orange juice, or iced tea. Below are some special water activities for you to try. Each of them is certain to keep you cooler during the "dog days" of summer.

Rainbows In Water

You will need: a hot, sunny day; a hose with a nozzle. **What to do:** Put on some light clothes or a swimming suit. Turn on the hose and play in the water until you are cool. Then, turn the nozzle of the hose so that the water comes out in a fine spray. Lift the hose to force the water high into the air. Can you see a rainbow in the spray of water? The rainbow is created by light from the sun. When sunlight strikes the drops of water, the drops separate the light into many colors. Can you name the colors? They are red, orange, yellow, green, blue, indigo, and violet. This arrangement of color is called the *spectrum.* Turn the nozzle again so that the water droplets get bigger. What happens to the rainbow?

Lemonade

You will need: fresh lemon; knife; sugar; water; drinking glass; measuring cup; measuring spoons. **What to do:** Place a cup of water in the drinking glass. Cut the fresh lemon in half. Remove any visible seeds. Squeeze the juice from each lemon half into the glass of water. Stir the lemon juice and water together and taste. Is the mixture sweet or sour? Next, place two or three teaspoons of sugar into the water. Stir again and taste. Has the taste changed? Can you still see the grains of sugar? When sugar is added to water, the grains of sugar *dissolve.* Add one more teaspoon of sugar to the lemonade. Stir. Can you see the grains? How long does it take them to dissolve? Last, but not least, drink the lemonade!

Cool, Frigid Ice

You will need: ice cube tray; popsicle sticks or wooden toothpicks; water. **What to do:** Fill an ice cube tray with water. Place the tray into the freezer compartment of your refrigerator. Check the tray an hour later. Has the water changed? When ice crystals begin to form, the water will feel "slushy." It will not be frozen solid. Place a popsicle or wooden toothpick into each section or cube of "slush." Leave the tray in the freezer for at least three more hours. When the water in the tray is frozen solid, you will have ice popsicles to keep you cool. Take one of them outdoors to lick on a hot summer day. Try leaving one in the shade and another in the sun. Which melts faster? Place one on the grass and another on the sidewalk. Which one melts faster? With an ice popsicle to lick, sit down on the grass in the shadiest spot you can find. See how much cooler you'll feel!

— *Ilene Follman,*
Educational Consultant

PUZZLE

There are at least twelve words that can be found in the WATER. How many can you find?

Answers: tea, ate, at, rat, raw, war, we, re, wet, tar, era, wart.

PUZZLE

Here is a puzzle that is sure to keep you cool! Find the words listed below. Look up, down, and across.

ice
water
cool
chilly
cold
swim
shade
frozen
wet
freezer
breeze
frosty

F	R	E	E	Z	E	R	Q	A	B	F
R	T	O	P	O	W	A	T	E	R	R
O	M	N	I	C	E	C	D	F	E	O
S	L	R	P	O	T	H	K	A	E	Z
T	B	E	F	L	E	I	G	U	Z	E
Y	H	J	A	R	S	L	B	Z	E	N
S	H	A	D	E	Z	L	O	R	D	G
W	C	O	O	L	H	L	K	A	C	F
I	F	E	W	U	B	Y	A	B	A	R
M	O	D	I	L	C	O	F	U	T	P

Plant Talk From the Gardenview Restaurant

Corn

FOOD FACTS:

Corn, *Zea mays,* is a member of the grass family (Gramineae) and a relative of other cereal crop grasses — sorghum, oats, barley, rye and wheat. Corn is called maize outside of the U.S. and Canada, and is an annual grass that was unknown outside of the New World until the time of Columbus' voyage to America. Corn was domesticated by American Indians as "mays."

Archeological evidence has shown that primitive forms of corn were cultivated in the Americas as long as 5,000 years ago. Its origin is from two wild grasses of Central and South America, Teosinte (*Zea mexicana*) and gama grass (*Tripsicum dactyloides*). Teosinte has hard kernels that were popped to expose the nutritious food inside.

Although there is no simple answer to the origin of maize, Dr. Edgar Anderson, former Director of the Missouri Botanical Garden (1954-1955), was one of the first corn researchers to establish the origin of modern corn.

Corn plants interbreed easily to form fertile hybrids. The plant is *monoecious,* with the male flowers (tassle) and the female flowers (ear with silk) on separate parts of the same plant. Corn requires a long growing season with hot summers and abundant rainfall.

The five major varieties of corn are dent, flint, pop, flour and sweet corn. It is a major staple as food for direct human consumption only in Central and South America, and in some parts of Africa, but it really never caught on as a major food plant in Europe. Its production is about equal to that of wheat and rice and the U.S. produces 50% of the world's crop with over 90% being used as livestock food to fatten cattle and pigs for market.

The grain of maize is cooked in a great variety of ways to make very palatable and popular foods. Immature cobs (ears) are boiled, roasted, or even pickled to be eaten as a vegetable. Mature grain is ground into a coarse or fine flour to make pancakes, unleavened bread or cake, thick gruel or soup, or eaten as a cooked cereal that can be cooled, sliced and fried (mush). The grain is used to brew beer or to produce distilled alcoholic spirits, corn starch, oil, sugar syrups, and a large number of industrial products. Corn plants make excellent animal fodder which is fermented and fed as silage to cattle.

FOOD TIPS:

Mexican Corn Pudding

3 slices white bread
Milk
1 small can corn or 2 fresh ears of corn, cut from cob
3 tbsp. butter, melted
1/3 bell pepper, diced finely
1/2 medium onion
1 whole pimento, diced
2 eggs, beaten

Soak bread in enough milk to saturate thoroughly. Beat mixture until smooth. Combine remaining ingredients. Pour into greased casserole. Bake at 375 degrees for 30 minutes.

Kids' Tip:

A great deal of research is done by corn geneticists and plant breeders to increase grain yields, expand the range of growing this crop and to keep ahead of the disease producing viruses and fungi that plague this important crop. The genetics of corn are understood very well, and the 1984 Nobel prize in Medicine and Physiology was awarded to Dr. Barbara McClintock of Cold Spring Harbor Laboratories in New York for her 40 years of research with corn. She proved that her "jumping gene" theory in corn was applicable to many other organisms and being used to unravel mysteries of how genes operate. New advances in bioengineering and biotechnology with corn are showing that the advances in plant breeding with this ancient plant are applicable to many other important crop species of plants.

Correction

In the last issue of the *Bulletin,* a story incorrectly identified the new bulb garden. The correct name is the Samuels Bulb Garden.

Tributes

MARCH-APRIL 1986

In Honor Of:

Mrs. Lester Adelson
Mrs. Zola Carp
Mrs. Joyce Driemeyer
St. Louis Herb Society
Mrs. David Farrell
Mr. and Mrs. Frank P. Wolff
Mr. and Mrs. Morgan O. Finkeldey
Miss Lucille Papendick
Mrs. Fran Grindler
Mrs. Fran Fleit
Ms. Jane Hartmann
Ms. Betty MacConnell
Mr. and Mrs. Carl W. Hoppe
Mrs. H. Frederick Walz
Mrs. Ruth Horwitz
Mr. and Mrs. Leslie E. Portnoy
Mrs. Jane Jacobs
Sunny and Myron Glassberg
Jack Jennings
Edward See
Mrs. J. Eugene Johanson
Mr. and Mrs. George W. Achuff
Mrs. I. Kay
Sunny and Myron Glassberg
Carl Kottmeier
Mr. and Mrs. Macy Abrams
Mr. and Mrs. Robert E. Kresko
Mr. and Mrs. Walter G. Stern
Mr. Stephen Loeb
Kit and Bud Samuels
Mr. and Mrs. Henry Lowenhaupt
Mr. and Mrs. Joseph F. Ruwitch
Mr. and Mrs. Bernard Mellitz
Mr. and Mrs. Saul A. Dubinsky
Mr. and Mrs. Joseph F. Ruwitch
Dr. and Mrs. Samuel D. Soule
Don Morin and Lisa Peyton
Bill Eastman
Cindy Garnholz
John Newmark
Mr. and Mrs. Al Gerber
Mr. and Mrs. William Prince
Francis and Vera Zeller
Mr. and Mrs. Earl Samel
The Manzo, Collier and Cravagan Families
Mr. Gene Manzo
Mr. and Mrs. Arthur Scharff, Jr.
Rose Floret
Mr. and Mrs. Ned Schneider
Leonard and Frances Kantor
Mrs. James A. Singer
Mr. and Mrs. Joseph F. Ruwitch
Dr. and Mrs. Llewellyn Sale, Jr.

(continued on page 18)

Tributes

(continued from page 17)

Mrs. Lloyd Stark
Mrs. Wm. Henry Schield
Mr. C.L. Tooker
Mr. and Mrs. Charles Cook
Dr. and Mrs. Stephen Waltman
Mr. and Mrs. Lawrence Linkon
Mrs. Edna Wetterau
Mr. and Mrs. Raymond Bodamer
Mr. and Mrs. Arthur E. Zbaren
Carl and June Kottmeier
Mr. and Mrs. Francis Zeller
Mrs. Corinne Emmendorfer
Mr. and Mrs. August H. Lamack
Mr. Jay V. Zimmerman
Dr. and Mrs. Llewellyn Sale, Jr.

In Memory Of:

Mr. Don Andrews
Mr. and Mrs. John Gardner
Mr. Donny Armendariz
Dr. and Mrs. T.J. Fowler
Mr. C.F. Axline
Mr. and Mrs. Raymond A. Vosburgh and Family
Mrs. Theresa Agatstein
Mr. and Mrs. Jerome Steiner
Mrs. Jane Baerdendistel
Mrs. E.W. Kaiser
Mr. Charles E. Barba
Mr. and Mrs. Charles Tooker
Mrs. Lena Barrow
Don, Connie, Jeff and Jane Zimpfer
Rev. Robert J. Baumann
Mr. and Mrs. Robert G. Martyn
Mrs. Helen Becker
Mr. Robert C. Camp and Family
Mr. J. Herman Belz
Mr. and Mrs. Gordon L. Ankney
Mr. Norton Bender
Frank Robbins
Carol Weisman
Mr. Albert G. Blanke, Jr.
Alexander and Elizabeth Bakewell
Mr. and Mrs. Jackson J. Shinkle
Mrs. John Shoenberg
Mrs. F.T. Blase
Mr. and Mrs. George B. Hagee
Louise Boeckelmann
Bob and Betty Embree
Paul and Lil Embree
Janet and Ed Schumer
Mrs. Rosette Borchelt
Beatrice C. Obermeyer
Mr. Herman Bowmar
Mrs. Paula Bowmar
Mr. Jim L. Bridges
Mr. Donald Flanagan
Mr. Bill Heyde
Miss Florence Roschke
Vivian Toney
Herbert and Fanchon Weitman
Mr. Rex Bruce
Mrs. C.W. Rauscher
Mrs. Marilyn H. Burchfiel
Ann and Peter Husch
Mrs. Robert Burnett
Mr. and Mrs. Kenneth Teasdale
Judith Griffin Cale
Mrs. E.R. Hurd, Jr.
Mrs. James Clark
Mr. George Bishop
Bernard V. Corcoran
Mr. and Mrs. Victor A. Silber
Mr. James A. Corrigan, Sr.
Mr. and Mrs. Daniel Corrigan
Miss Mary Cuttle
Mr. and Mrs. B.A. Funk
Mrs. Ruth Davis
Mr. and Mrs. Herbert W. Markwort
Beatrice Dawson
Mr. and Mrs. Norman McCracken
Mrs. Edna May Deicke
Florence Abeken
Evadne A. Baker
Mrs. Marvin Harris
Mr. George C. Doering
Mr. and Mrs. Frank O. Bittner III
Mr. George Dragich
Mr. and Mrs. Robert Manturuk
Mr. and Mrs. Harry Dumbleton
Dr. and Mrs. Robert F. Scheible
Miss Louise S. Emme
Miss Edna L. Emme
Mr. Walter Cooksey Estes
The Robert B. Kern Family
Mrs. Katherine Faerber
Mr. and Mrs. Carl F. Ritchie
Mrs. Jean Wilkie Farrar
Carol and Phil Chew
Mrs. Eleanor Figge
Mr. and Mrs. Kit L. Kramer
Mrs. Nina Fingold
Mr. and Mrs. Herbert M. Talcoff
Mr. Hickman Fisher
Mr. and Mrs. Geo. Penhale
H. Fletcher
Phyllis Woollen
Miss Alice Flint
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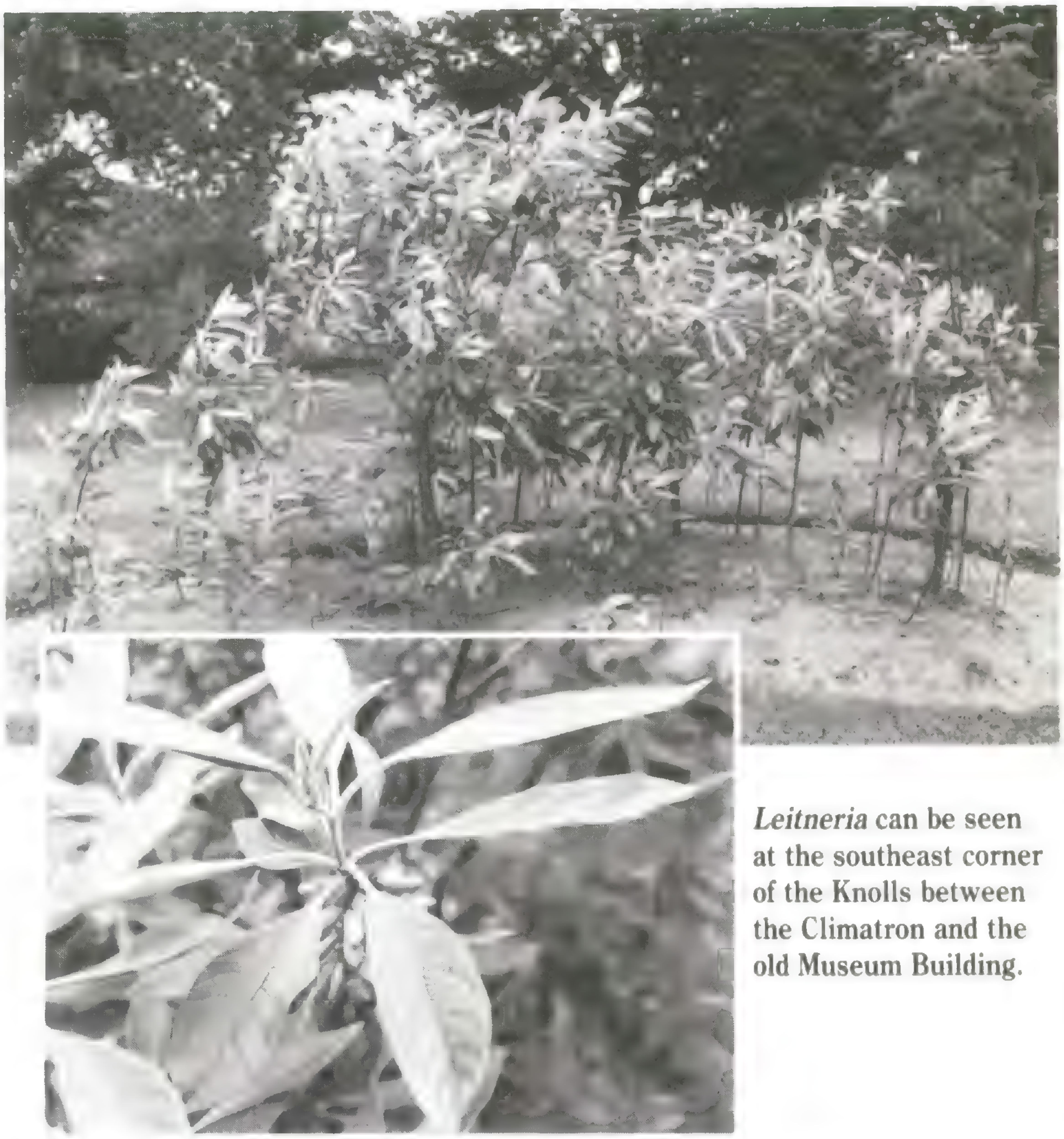
Plants To Remember

Corkwood — A Native Missouri Oddity

Corkwood (*Leitneria floridana*) is the only species in the family Leitneriaceae, which has no obvious close relatives in the plant world. It is restricted to, and uncommon in, low wet habitats scattered widely across the southeastern and south central United States. Its northern limit is in southern Missouri, where it has spread into wet areas disturbed by human activity and is protected on the Corkwood Natural History Area.

The tiny flowers, which are pollinated by the wind, are borne among reduced leaves (bracts) in elongate clusters known as catkins (or "aments"). "Male" (pollen-producing) and "female" (seed-producing) flowers form on separate individuals. As can be easily seen on the clump in the Knolls southeast of the Climatron, much reproduction is by suckers from the roots.

The common name "corkwood" reflects the fact that this species has the lightest wood of any North American tree. It was once used for manufacturing floats and stoppers for bottles. The generic name *Leitneria* commemorates Dr. E. T. Leitner, killed during 1838 in the Seminole War.



***Leitneria* can be seen at the southeast corner of the Knolls between the Climatron and the old Museum Building.**

In 1964, Edgar Anderson, at that time a botanist at the Missouri Botanical Garden, published an odd report in the *Bulletin* of two dogs enthusiastically and repeatedly attacking the *Leitneria* here. In the interest of repeating the observation, I presented a leafy sprig and a few fruits to my two dogs and stood back to watch the mayhem. After a perfunctory sniff, they ignored the corkwood altogether.

— George K. Rogers, Ph.D.,
Horticultural Taxonomist

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BULLETIN

VOLUME LXXIV, NUMBER 6 SEPTEMBER-OCTOBER 1986

Indian Summer at Shaw Arboretum

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On the cover: The prairie at Shaw Arboretum in Gray Summit is an excellent place to enjoy the beauty and serenity of Indian Summer in Missouri.
— photo by John Dengler

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The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $35 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

Postmaster: send address changes to Lee B. Fox, editor, BULLETIN, P.O. Box 299, St. Louis, MO 63166.

Comment

Lehmann Building Campaign Complete

I am pleased to be able to tell you that our campaign for the renovation of the John S. Lehmann Building is complete. Construction will be finished by the end of October. It provides increased storage space for our plant specimens, redesigned office space, rearranged library space giving extra working room and shelving space, and building renovations such as a new roof.

The fund raising program raised $2.3 million for this important project. We have met the fund raising goal and especially want to thank Mrs. Anne L. Lehmann, Mr. & Mrs. Joseph H. Bascom, Caleb C. & Julia W. Dula, Educational and Charitable Foundation, General American Life Insurance Company, General Dynamics Corporation, Mary Ranken Jordan and Ettie A. Jordan Charitable Foundation, McDonnell Douglas Foundation, McDonnell Douglas Corporation Employee Charity Community Service, Monsanto Company, Mrs. Fred A. Oberheide, Spencer T. and Ann W. Olin Foundation, Pulitzer Publishing Company Foundation, Shoenberg Foundation, Inc., Mr. & Mrs. Wallace H. Smith, Southwestern Bell Telephone Company, Mrs. Hermann F. Spoehrer, Union Pacific Foundation, Mrs. Horton Watkins and the estates of Beulah E. Thorp and Anna Hahn, whose generosity has been invaluable.

The campaign was successful due also to the many Members who contributed to our $85,000 National Endowment for the Humanities Challenge Grant. These Members were previously recognized in the Annual Report. Other major gifts included a $350,000 challenge posed by The Kresge Foundation to finish the fund raising, which we have now met. We are also pleased to have received $250,000 from the National Science Foundation for the new compactors. Once again, I thank all of you who participated and helped with this important effort.

Peter H. Raven

Ellen Ellick (l.) and Tim Hogan (r.) of the Union Pacific Foundation presented Dr. Marshall Crosby, director of research at the Garden, with the second installment of a $50,000 pledge for the renovation of the John S. Lehmann Building in July.

Gardening at the Garden

SURVEYING THE TREES

AS TREES COME AND GO OR CHANGE, as their names require updating, as their labels weather, and as we learn more about them, it becomes useful from time to time to conduct a complete tree inventory. Last autumn the Horticulture Department decided that the time had come and launched a survey with the goals of identifying and labeling each tree, and recording each in a computer. The end of the project is in sight; however, its completion will not mean we will then ignore the trees. Rather, it firms up our basis for continual attention to them.

Beyond the general principle that it is desirable to maintain accurate records or the specimens under our care, there were immediate benefits to be derived from the survey. Arranging a new program of tree maintenance, including setting up lightning protectors, required a list of the largest individuals — there are over 600 with trunks exceeding 15 inches in diameter. A second immediate benefit is that good records allow informed decisions as we expand the collection. Further, not only are we listing species, we are also accumulating data on their whereabouts, classifications, labeling, dedications, physical conditions, maintenance, and additional features. All of this helps with curating the trees and with providing information to visitors, staff, and horticulturists and botanists at other institutions.

The survey could not be accomplished if it were not a team effort. Two volunteers gather data along with the author of this article. Essentially a charter member of the team, volunteer Nelson Hower joined the survey early last winter and has visited every tree on the grounds, except for the conifers, in every kind of weather. His remarkable sense of organization coupled with long-standing enthusiasm for the Garden and its trees have made him a "natural" for the project. After surveying the hollies at the Garden, volunteer Sarah Moore became conifer specialist for the survey. Trained in horticulture and in identifying landscape trees, she has brought valuable knowledge to the team. The other half of the work, recording data in the computer, is in the talented hands of plant recorder Peggy Wilmes and volunteer Paul McClinton, whose dual efforts behind the scenes reflect hard-earned ability to deal with tricky plant names and, of course, skill with the computer.

Our approach is not complicated. We identified each tree as precisely as possible (leaving problem cases for renewed investigation when critical parts can be obtained), measured trunk diameters on the larger trees, assigned each a pair of grid coordinates to establish position, assessed the condition of the labeling, and tagged unlabeled specimens with temporary numbers until new labels could be made and placed. The grid coordinates stored in the computer will allow it to plot individuals of different species on maps of the Garden.

Our labeling system makes use of two types of labels. Placed as inconspicuously as possible, every tree receives a small aluminum tag show-

The *Ginkgo biloba* shown at the top of this page dates from Henry Shaw's day. Also known as the Maidenhair tree, it is one of several at the Garden. Top, right: *Ginkgo biloba* leaves and seeds. Below: *Ginkgo biloba* leaf.

(continued on next page)

Kay Sofian

Paul McClinton

Two Volunteers Complete an Awesome Task

Until 1983, the horticulture department at the Missouri Botanical Garden maintained plant records on index cards, roughly twenty thousand of them. Almost three years ago, we began switching to recording living specimens in a computer. This raised the problem of transcribing the data from all those cards to the machine. Two volunteers, Kay Sofian and Paul McClinton, came forward and met the challenge, completing the effort this summer after coping undaunted with (and helping to refine) sweeping changes in the computer programs in use.

Paul transferred virtually all of the records, except for the orchids. He came to the task well prepared, familiar with computers and plants alike. Now, with a mountain of cards behind him, instead of abandoning the plant records, he is applying his abilities to an inventory of the trees, which is explained on page 3.

Kay was knowledgeable about orchids before tackling the records on the Orchidaceae, the most abundantly represented plant family in the collection. Like Paul, she remains actively interested in the records and is now refining and augmenting those that she computerized.

The horticulture department extends its thanks for a crucial job well done.

Surveying the Trees

(continued from page 3)

ing the record number and identification. Except in the Japanese Garden, most trees also bear conspicuous display labels giving the common and scientific names, family to which the species belongs, and natural distribution. Small Missouri maps signify natives of this state. The display labels must be tended periodically — they bend, break, or fall off as the trunk expands.

It does not take long as a tree surveyor to realize that the Garden possesses a fascinating tree collection. I suggest visiting the Garden one afternoon to concentrate on learning to distinguish the ten or so species of oaks here, to consider species for planting at home, or to explore our unusual or exotic trees.

Of these, the soapberry (*Sapindus drummondii*), east of the Lehmann Rose Garden, is the lone native Missouri species of the large, mostly tropical Soapberry Family (Sapindaceae). It inhabits the southwestern corner of this state and regions to the south and west of there, extending into Mexico. Called soapberries because their berries lather in water, species of *Sapindus* are employed for washing in some countries. Toxins known as saponins in the berries make them useful also for killing fish, a discovery imaginable as having been made downstream from a site where the berries were serving as soap.

If your tastes are more exotic, you can enjoy two other arborescent members of the Sapindaceae at the Garden. The golden-rain tree (*Koelreuteria paniculata*) is a showy landscaping favorite from Korea and China. Its exuberant display of golden flowers early in the summer is easy to spot, especially behind the Climatron, where several are in a row. After the flowering season, watch for the clusters of tricornered bladder-like pods. In the spring, you may notice clusters of white flowers marked with red on the somewhat shrubby *Xanthoceras sorbifolium* by the walkway east of Tower Grove House. It and the only other species of *Xanthoceras* come from China.

If you take the trouble to become acquainted with this trio from the Soapberry Family, your efforts will be even more rewarding if you pay attention to features that define the family as a whole. These include pinnately compound leaves (each leaf looking like a stem with little leaves along it), fairly small flowers in elongate clusters, and often three-parted fruits.

With this thumbnail beginning in hand and with new labels appearing on the trees, exploring the trees at the Missouri Botanical Garden is an opportunity ready for your enjoyment.

— George Rogers, Ph.D.
Horticultural Taxonomist

Quercus bicolor —
Swamp White Oak

Sciadopitys verticillata —
Umbrella pine

NEWS FROM SHAW ARBORETUM

New Interpretive Signs in the Experimental Prairie

Owen Sexton (L.), John R. Cline and Maurice J. Lonsway, Jr.

Two interpretive signs were installed in July on the Experimental Prairie at Shaw Arboretum. The Missouri Prairie Foundation provided the funds for the signs, which were designed by the architectural firm of Hellmuth, Obata, & Kassabaum, Inc.

These attractive signs will help visitors learn more about tallgrass prairies and their importance in our culture.

On July 19, a small gathering of people involved with the Prairie Project attended a dedication of these signs and enjoyed a pleasant hike and sunset on the prairie. The treasurer of the Missouri Prairie Foundation, John R. Cline, board member Owen Sexton, and former board member and first president of the Missouri Prairie Foundation, Maurice J. Lonsway, Jr. were in attendance.

The Missouri Prairie Foundation, which has been instrumental in preserving some prime examples of Missouri prairie, is celebrating its 20th anniversary this year. Anyone wishing information about this organization may write The Missouri Prairie Foundation, P. O. Box 200, Columbia, Missouri 65205.

Loop Road To Open

Shaw Arboretum will again open the Trail House Loop Road on Wednesdays only, for those who find walking difficult. For safety reasons, visitors are asked to stop and register at the Visitor Center. From September 3 through November 12, the Loop Road will be open to vehicles from 8 a.m. to 4 p.m. For more information, please call the Arboretum at 577-5138 or 742-3512.

Arboretum To Close During Deer Season

This arborvitae shows typical damage to plantings caused by deer at the Arboretum.

In cooperation with the Missouri Department of Conservation, Shaw Arboretum will be closed during deer hunting season, November 15 through 23, 1986. During that time, the Missouri Department of Conservation will conduct a special hunt on the grounds.

Deer were first sighted in the Arboretum in 1939, and since that time have prospered in the area. Careful patrolling of the Arboretum perimeters has maintained the area as a sanctuary for wildlife.

In recent years, the Arboretum has sustained serious damage to plantings from over-population of deer in the area. The hunt is expected to bring the property back into management.

Garden Accepting Applications for Master Gardener Program

The Garden is accepting applications for the Master Gardener adult volunteer program. Upon acceptance in the program, Master Gardeners receive a minimum of 30 hours of free training in horticulture and gardening and then donate at least 50 hours of their time in a wide variety of educational services.

"We're looking for avid gardeners eager to learn more — people willing to volunteer their time and share their knowledge and the pleasures of gardening with the community," said Glenn Kopp, instructional coordinator/adult programs for the Garden.

Training for Level I Master Gardeners qualifies them to contribute to Garden-sponsored programs such as the Speakers Bureau, Horticultural Answer Service, Plant Problem Diagnostic Clinics and Educational Fairs. Master Gardeners also share their newly acquired knowledge by assisting or teaching Garden classes for children, adults and senior citizens, as well as preparing educational materials.

Level I Master Gardener training covers plant growth, gardening techniques, indoor plants, vegetable gardening, lawn care, fruits, flowers and trees and shrubs. Training for Levels II and III includes problem identification and control, pruning, propagation, landscaping and in-depth study of ornamentals, trees and shrubs. Each level consists of 30 additional hours of training.

Applications can be obtained from the Garden's Education Department by calling 577-5140. Applications must be received by Sept. 19. Training is scheduled for ten Mondays between Nov. 3 and Jan. 26, 1987, 1 p.m. to 4 p.m. at the Garden.

Environmental Studies Teach Leadership, Communication, Responsibility

ECO-ACT STARTS SIXTH YEAR

"Let me tell you how valuable ECO-ACT was for me . . . It truly has had a great effect on the course my life is taking so far. The knowledge, skills, experiences and friendships have been priceless, and that's not a word I use often. I only hope that I may be able to share my present experiences with you, to give back some of what I have gained from you, who have helped me to see the education process as a positive growing experience . . ."
— Emily Mathis (ECO-ACT 1982-85)

ECO-ACT is an environmental leadership program sponsored by the Missouri Botanical Garden. Now beginning its sixth year, ECO-ACT has touched the lives of St. Louis high school students, elementary students, and teachers in city, county, public and private schools. The focal point is the high school student, who investigates environmental issues downtown, explores ecological concepts at Shaw Arboretum, and develops teaching skills at the Garden during a three week summer training program. In the fall, Garden staff and elementary and high school teachers and administrators work in tandem to set up teaching teams of high school students in elementary school classrooms.

The high school students teach their elementary students for one hour per week, they guide them on a field trip each semester, and also lead them in an environmental action project in the spring.

"ECO-ACT laid the foundation for my interest in the environment and my pursuit of a career in horticulture."
— Joseph Tillman (ECO-ACT 1982-83)

In the "environment" part of the program, students learn about the complex and delicate interrelationships of living things with each other and their environment. They learn how they, as individuals, are part of that web and therefore have a responsibility towards it. They learn to care about the environment by interacting directly with the natural world. They learn how to define, investigate and take action on environmental issues. They learn to distinguish fact from opinion. They interview professionals in environmental careers. They teach what they have learned to younger children, and in so doing learn more.

"I also benefited from ECO-ACT in that my concern for the environment has increased. Not that I wasn't concerned — just not aware. I realize what we (as residents of this world) are up against — I really think that people would treat the environment better if they just knew."
— Tom Gerth (ECO-ACT 1981-83)

The program focuses on innovative science education. Students learn about a science of interrelationships, an empathetic science, a science with immediate "real world" applications and implications. The emphasis on personal responsibility and concrete connections motivates students to learn more about the way the world works.

"ECO-ACT helped me to work in groups, helped me to control my fears and learn, and helped me a lot with my shyness which I never thought I would get over. ECO-ACT gets you ready for the real world."
— Farida Remtula (ECO-ACT 1983-84)

Leadership is the second component of the program. The keys to strong leadership are self-confidence, and the ability to work with others to get things done. The student who feels competent and worthwhile will be empowered to create what he or she wants in the world. In the program, students are presented with

Wilson To Leave Garden

ECO-ACT instructors Karla Goodman and David Wilson test water samples in the Japanese Garden as part of an environmental course.

David A. Wilson, who came to the Garden in 1981 to develop the Environmental Leadership Program that has become ECO-ACT, has taken a new position as the executive director of the Citizenship Education Clearing House in St. Louis.

"While I will miss the Garden and the excellent staff in the Education Department, and I regret leaving this year's ECO-ACT students, who are outstanding young leaders, CECH offers some exciting new challenges for promoting experiential learning in St. Louis area schools," Wilson said.

Citizenship Education Clearing House, founded in 1967, involves students in action projects to help them learn how our system of government operates. Working within political structures, students learn how to be effective citizens in a democracy.

CECH also conducts special Candidate Forums during election years, takes students to Jefferson City to lobby on issues they select and research, and assists teachers in developing curriculum on timely issues of local and national concern.

Wilson said his overall goal is the development of a council of cooperating school districts to promote experiential citizen education.

unique challenges. For many it is the first time they have ridden a bus downtown, made decisions in a group, paddled a canoe, designed an environmental investigation, sat alone in the woods, given an oral presentation, slept under the stars, organized a lesson plan, cooked their own meals, or taken responsibility for teaching younger children. In savoring their accomplishments, students achieve a new sense of confidence and competence.

> *"During the program, I think the 'learning' of new people helped me the most . . . I (met) guys and girls from many different schools with many different ideological, racial, religious and school backgrounds. I have benefited from this."*
> *— Tom Gerth (ECO-ACT 1981-83)*

In ECO-ACT the students learn to share openly their opinions, feelings, ideas and ideals. A single environmental issue such as over-population will create a discussion as lively as the group is diverse. The students, while voicing their thoughts, learn to speak convincingly and to listen acceptingly. In another process dubbed "sharing circle," students reveal something they like, admire, or appreciate about someone else in the group. They learn that sharing positive feelings reflects back to them, and the self-esteem, trust, sense of belonging, and bonding within the group multiplies. The student who feels worthwhile is ready to become a leader.

> *"In ECO-ACT I learned from others, even the young. I learned to be patient, and to be inquisitive about my surroundings. I learned the great ability to communicate."*
> *— Michael Massarello (ECO-ACT 1982-83)*

The program has evolved over five years. It has grown from five high schools and 30 students to 15 high schools with 96 students.

> *"ECO-ACT helped me in more ways than I could ever count. I'm still discovering some of them."*
> *— Laura Hoffman (ECO-ACT 1983-85)*

Henry Shaw Academy News

Prairies, ponds, jungles and deserts were just a few of the places explored this summer by members of the Henry Shaw Academy. Over 150 students ages 7-13 participated in a variety of Academy classes designed to deepen their understanding of the natural world and to help develop their skills of observation and experimentation. Discovery walks, games and classroom projects helped to make the learning fun, as did trips to the Zoo, Science Center and various fountains and creeks to cool everyone off.

The Henry Shaw Academy opened this June and is available to all students, ages 7-18, interested in science, ecology and natural history. Membership is $15 a year, and some scholarships will be offered for certain classes. Students joining the Academy will receive a membership card, newsletters, invitations to special events and reduced fees for classes. Members who complete their first class will receive an Academy T-shirt. Additional awards will be made as members complete other levels of participation and achievement.

The Academy will be offering a variety of activities throughout the year. Information for fall classes and special events was sent to Academy members in August. For more information on membership call 577-5135.

Academy Highlights: The Explorer Post

The Henry Shaw Academy announces its new program, the Explorer Post, for students ages 14-18. The Explorer Post will offer many exciting challenges and opportunities for young people interested in the natural world. As Explorers, they will have access to the staff and resources of the Garden and Shaw Arboretum. Those with a career interest in botany, horticulture or environmental science will have opportunities to try out their interest in different ways — through Explorer activities, internships and presentations by experts in these fields. Those with an active interest in the outdoors will find numerous opportunities for camping, biking, canoeing and orienteering. Yet another bonus to joining the Academy's Explorer Post is meeting and working with other young Explorers who share a lot in common.

All interested students ages 14-18 are invited to attend the first Explorer meeting on **Thursday, September 18,** 7:30-9:30 p.m. in the Ridgway Center. Students are encouraged to bring parents and interested friends. For more information and to reserve a place for that evening, call 577-5135.

Halloween Special: An Enchanted Evening

Join other Halloween revelers at Shaw Arboretum for a night of enchantment. Come hike our trails — not to be scared but enchanted with stories and skits of legend and wit. Bring your family in garb and get-up to be guided along the jack-o-lantern lit trail. Visit with owls and discover how Halloween came to be. Refreshments will be served. Please call 577-5138 to make reservations.
Saturday, November 1
7:30-9:30 p.m.
Arboretum Visitor Center

For Academy members and their families only. Please bring membership cards!

Grand Gardens...

Nothing could have been grander than the St. Louis Garden Tour on June 29. Garden members enjoyed a unique opportunity to view St. Louis' most touted and breathtaking landscapes. From the Director's Garden in south St. Louis stretching to the bluffs of the Missouri River, the gardens provided Members with a taste of elegance, simplicity, the unusual and the unexpected, and certainly variety. Over 1,000 members enjoyed the day and look forward to the Garden Tour becoming a tradition.

The Garden Tour featured a variety of landscapes from majestic estates to intimate hideaways. Pictured clockwise from top are; the Director's Garden in south St. Louis, the European Garden in Florissant, the English Garden in Clayton, the Architect's Garden in Ladue, and the River Garden overlooking the Missouri River in north St. Louis County.

Privacy, serenity and attention to detail were important elements found in the Landscape Architect's Garden in Ladue, far left; the Japanese Garden in Florissant, top left; and the Pool Garden in Ladue, bottom left.

…and a Grand Finale!

The only thing that could have topped the Garden Tour was the Garden Tour Finale Party. A pleasant ending to a very successful day took the form of an English garden party replete with a bobby, a palace guard, lawn bowling, and a surprise visit by a procession of bagpipers. Laura Ashley models, goodies from Crabtree & Evelyn and a London round trip airfare giveaway by TWA topped the evening. In all, a Grand Success!

The Tour and the Finale Party teamed up for a fundraising success for the Garden of over $20,000. None of this would have been possible without the fine chairmanship of Mrs. Walter Ballinger II and Mrs. Henry W. Dubinsky, the generous garden owners, a very loyal crew of 135 volunteers, and the dedicated Missouri Botanical Garden staff. A hearty "thank you" to one and all!

The success of the Garden Tour was due to the outstanding work of the tour's co-chairmen Mary Randlolph Ballinger, left, and Ellen Dubinsky, center, and the efforts of the entire Members' Board headed by President Sue Oertli, right.

SEPTEMBER-OCTOBER

DAY-BY-DAY

SEPTEMBER

1 **11th Annual Japanese Festival**

9 a.m.-10:30 p.m., Grounds. Final day of Festival featuring the performing arts including Kabuki dancers and Japanese folktales. Other highlights that day include the SHOBO exhibit (19th century Japanese Firemen's Coats) and a Candlelight Walk. Admission is $3 for adults, $1 for senior citizens and free for children 12 and under. Members free.

11-14 **Fall Plant Sale**

9 a.m.-5 p.m., Garden Gate Shop. A good opportunity to get a great buy on a plant or one of many bulbs in stock.

13 **Fall Gardening Day**

11 a.m.-3 p.m., Ridgway Center. Lectures and demonstrations on fall planting. Free.

15 **Plant Clinic**

9 a.m.-noon, Ridgway Center. Free help for plant lovers.

18 **Academy Explorer Post**

7:30 p.m.-9:30 p.m., Ridgway Center. First meeting of the new Henry Shaw Academy Explorer Post. Call 577-5135 for details.

20-21 **Greater St. Louis Men's Garden Clubs**

Noon to 5 p.m. Sat. & 9 a.m. to 5 p.m. Sun., Orthwein Floral Hall. Free with regular Garden admission.

21 **Camera Day**

1 p.m.-5 p.m., Ridgway Center and grounds. For Members Only. Jack Jennings will offer photography tips in a lecture at 1:30 p.m. in Shoenberg Auditorium and help Members with their own photography on the Garden grounds immediately following his talk. Creve Coeur Camera and Video will have photography information from 1 p.m.-5 p.m. Space is limited and on a first come first served basis. Free.

24 **Tower Grove House Craft Fair**

10 a.m.-3 p.m., west lawn of house. Variety of crafts for sale. Free. Reservations for a box lunch that day can be made by calling 577-5150 by Sept. 22.

27-28 **Dahlia Society Show**

Noon to 5 p.m. Sat. & 9 a.m. to 5 p.m. Sun., Orthwein Floral Hall. Lots of beautiful dahlias on display. Free with regular Garden admission.

OCTOBER

4-5 **Gesneriad Society**

Noon to 5 p.m. Sat. & 9 a.m. to 5 p.m. Sun., Orthwein Floral Hall. Flowers from the African violet family. Free with regular Garden admission.

9 **Celebrate Missouri Wines**

7:30 p.m., Shoenberg Auditorium. Discover Missouri wines through a panel discussion by the state's leading vinters. For Members Only. Free.

10-26 **National Society of Arts & Letters' Young Sculptors Competition**

9 a.m.-5 p.m. daily, Ridgway Center. Exhibition of young sculptors (age 29 or younger) in connection with 1986 St. Louis Arts Festival. Free.

12 **River Styx**

2 p.m., Shoenberg Auditorium. Season premiere featuring performances by poet Gary Snyder and keyboard artists Seth and Maryse Carlin. Tickets $5 in advance, $6 at the door. Call 361-0043 for details.

13 **The Black Music Society's Jazz Repertory Ensemble**

7:30 p.m., Shoenberg Auditorium. Concert salute to Duke Ellington. $4 at door or $3 in advance by calling 534-4344.

14 **The Gardens of China**

7:30 p.m., Shoenberg Auditorium. Lecture by Alan Godlewski, chairman, Horticulture department. Free.

15 **The Japanese Garden — A Living Tradition**

2 p.m., Shoenberg Auditorium. Slide show. Free.

16 **Winery Bus Tour**

All day. Leave from Ridgway Center. A bus tour to Hermann to visit the Stone Hill and Hermannhof wineries. Lunch, tours, wine tasting, shopping and transportation included in $30 fee. For Members Only. Watch your mail for reservation form.

Raymond Evison

7:30 p.m., Shoenberg Auditorium. Lecture entitled "The Burford House Gardens through the Seasons". Free.

25-26 **American Regional Lily Society**

9 a.m.-5 p.m. Sat. & 9 a.m.-3 p.m. Sun., Ridgway Center. Bulb sale. Free.

26 **Henry Shaw's Halloween Garden**

5 p.m.-8 p.m., Ridgway Center and grounds. For Members Only. A variety of Halloween-type activities for the young-at-heart including magic show, storytelling by witches and more. Look for invitation in the mail.

28 **St. Louis Black Repertory Company**

8 p.m., Shoenberg Auditorium. "Harlem Revue." Funded by the Missouri Arts Council. Call 577-5125 for ticket information.

31 **Members' Preview of Fall Flower Show**

5 p.m.-8 p.m., Orthwein Floral Hall. Come enjoy an autumn walk through a "Formal European Garden." Also view "500 Years of Botanical Illustration" in Monsanto Hall.

SEPTEMBER-OCTOBER

COURSES & LECTURES

AT THE GARDEN

SEPTEMBER

4 (Th)	Lawn Care *(3 sessions)*
8 (M)	Gardening Techniques *(6 sessions)*
	Vegetable Gardening *(2 sessions)*
	Home Wine Making *(4 sessions)*
9 (Tu)	Trees for St. Louis Gardens
	Wild Flower Identification *(3 sessions)*
	Planting to Attract Birds and Butterflies
10 (W)	The Garden in Pen, Ink, and Washes *(6 sessions)*
13 (Sa)	Home Orchid Culture
16 (Tu)	Dried Flower Creations *(2 sessions)*
17 (W)	Gardening by Design
20 (Sa)	Fall Wild Flower Collecting Trip
	Nature Identification for Families
22 (M)	Nature Photography *(5 sessions)*
23 (Tu)	Home Landscape Design *(5 sessions)*
24 (W)	Fountains, Pools and Sculpture
27 (Sa)	Fall Migration on the Mississippi Flyway
28 (Su)	The Delight of the Dahlia
30 (Tu)	Selecting a Home Greenhouse
	Growing Irises
	Winterizing Your Roses

OCTOBER

2 (Th)	Ground Covers in the Landscape *(2 sessions)*
	Plants for St. Louis Rock Gardens
4 (Sa)	Breakfast with the Birds
	Science Experiments (for Families)
5 (Su)	How to Grow African Violets
6 (M)	Herbs: Indoor Culture and Uses *(3 sessions)*
7 (Tu)	Maintaining Your Home Greenhouse
8 (W)	Native Missouri Tree Walk
	Growing Plants Indoors
	Basics of Contemporary Floral Design *(3 sessions)*
14 (Tu)	Aquatic Gardening
15 (W)	New Plants from Old
	Japanese Garden Walk
16 (Th)	Hardy Lilies
	Japanese Garden Walk
18 (Sa)	Planting for Success
	Making Compost
	Pioneer Prairie Plants (for Families)
22 (W)	Designing a Home Herb Garden *(2 sessions)*
23 (Th)	Boxwood
	Dwarf Evergreens
25 (Sa)	Bulb Planting and Care
28 (Tu)	Small Ornamental Trees
	History of Garden Design *(5 sessions)*
29 (W)	Foliage Plants

AT THE ARBORETUM

SEPTEMBER

6 (Sa)	Evening Prairie Walk
9 (Tu)	Autumn Ramble
12 (F)	Nocturnal Awareness Hike
13 (Sa)	Evening Prairie Walk
16 (Tu)	Autumn Ramble
19 (F)	Nocturnal Awareness Hike
20 (Sa)	Evening Prairie Walk
23 (Tu)	Autumn Ramble
27 (Sa)	Trees of the Arboretum
	Dyeing with Natural Materials
30 (Tu)	Autumn Ramble

OCTOBER

4 (Sa)	Ethnobotany
	Basket Making
7 (Tu)	Autumn Ramble
10 (F)	Nocturnal Awareness Hike
14 (Tu)	Autumn Ramble
17 (F)	Nocturnal Awareness Hike
18 (Sa)	Earth Education Workshop
	Nature Photography *(2 sessions)*
	Meramec Float Trip

A New Vehicle for Botanical Research in Madagascar

This year, the Garden's botanical research program in Madagascar has been boosted by a special project to improve the process of collecting rare, endangered and newly discovered plants. We received a grant from the W. Alton Jones Foundation of Charlottesville, Virginia, supplemented by many individual gifts from the member groups of the National Council of State Garden Clubs, Inc., to purchase and maintain a vehicle for plant transportation.

Madagascar lies off the east coast of Africa and is the fourth largest island in the world, covering an area about twice the size of Arizona. About 2/3 of the more than 8,000 plant species there occur nowhere else in the world. Many of these plants have already given us medicines and food products, but many more have not yet been tested or studied at all. The discovery and scientific analysis of these plants, possibly leading to cultivation or commercial use, is highly interesting and important.

Many plants can be lost from slow transportation out of the field. Also, as in most tropical countries, they are found in very isolated locations, such as dense rain forests or mountainous areas, where there are few good roads. They can only be reached by four-wheel-drive vehicle. The generosity of our foundation and garden club donors has enabled us to buy and maintain a vehicle which went into use early this year. Since then, we have been able to increase our work in Madagascar a great deal and properly preserve the plants collected.

Mrs. Thomas A. Swinnie, World Gardening Chairman of the National, helped immeasurably to spread the word to the state and local member groups, who responded to the project with enthusiasm. Garden clubs from Washington state to Connecticut have participated.

We take this opportunity to once again thank the W. Alton Jones Foundation and the member groups of the National Council of State Garden Clubs, Inc. for their interest and support.

Note: Class descriptions and registration information for fall courses can be found in the *1986 Fall Courses and Lectures* brochure which was mailed to all Members recently. For more information call the Education Department at 577-5140.

FROM THE MEMBERSHIP OFFICE

Travel With the Garden

Now is the time to make your travel plans for 1987. The Missouri Botanical Garden will be sponsoring three tours with your interests in mind. The trips are designed to offer a variety of experiences and price ranges as well. Mark your calendars now and plan to join the Garden in 1987!

Virgin Islands Horticultural Cruise Expedition on board the *Newport Clipper* is being co-sponsored with the American Horticultural Society. Departing on January 18, 1987, this 8-day cruise will be led by Mr. and Mrs. Lindsey of Tortola and accompanied by Dr. Kenneth Laser, chairman of the Education Department, Missouri Botanical Garden. The highlight of this trip will be visits to exquisite private gardens throughout the Virgin Islands.

Ecuador and the Galapagos Islands

Treat yourself to this gem of a natural history tour designed specifically for the Missouri Botanical Garden. In August you will visit the Garden's Ecuadorian research sites as well as the Andean terrain and the capital city of Quito. It is then on to a cruise of the wildlife islands of the Galapagos archipelago. Led by Garden botanist, Calaway Dodson, this trip will be a delight!

The Gardens of Scotland

Alan Godlewski, chairman of the Horticulture Department, and Judy Peil of Judy Peil Travel, will once again team up for an unforgetable tour of Scotland's loveliest gardens. This two week tour in June promises the best of everything . . . accommodations, dining, sights and scenes and a warm reception and wonderful hospitality throughout the trip.

Camera Day

Sunday, September 21, is Camera Day at the Garden. Meet with the experts . . . Jack Jennings, photographer of Missouri Botanical Garden Calendar fame, and the folks from Creve Coeur Camera and Video. Jack will make a presentation at 1:30 p.m. in Shoenberg Auditorium and follow that with a walk into the Garden to some of his favorite shooting sites.

Creve Coeur Camera and Video will supply their expert advice at special photographic stations throughout the Garden from 1 p.m. to 5 p.m.

Membership Tops 18,000 Mark

The Membership Department reports a record number of Missouri Botanical Garden Members during the month of June . . . 18,156 strong! The 18,000 member mark was attained through a successful new member drive during the spring. The Missouri Botanical Garden enjoys the largest membership of any cultural institution in the St. Louis area. These healthy totals are a reflection of the loyal group of supporters who value the Garden's beauty, the important role the Garden plays worldwide in conservation efforts, and who simply enjoy the fun experiences available to Garden Members.

It's Just Around the Corner!

Yes, the holidays are just around the corner! Start making your list now for all the family and friends you'll be sending a Missouri Botanical Garden membership. It's not too early. In fact, you can get a jump on the season now with this handy gift membership form. We will stash it away in a stocking until December when a beautiful Missouri Botanical Garden tree ornament and a friendly season's greetings will be mailed to your chosen friends, relatives, or business associates.

GIFT MEMBERSHIP ORDER FORM — *Please mail three weeks prior to occasion:*

☐ Birthday ☐ Holidays ☐ Other ____________________

Gift To:

NAME ____________________

ADDRESS ____________________

CITY __________ STATE __________ ZIP __________

TELEPHONE ____________________

Sign gift card: ____________________

Date Needed By: ____________________

Regular Membership $35. Contributing Membership $75.

For more information call 577-5118.

Gift From:

NAME ____________________

ADDRESS ____________________

CITY __________ STATE __________ ZIP __________

TELEPHONE ____________________

☐ Enclosed is my check for $ __________

☐ Please charge: VISA No. __________

MasterCard No. __________

Name as it appears on card: __________

Expiration date: __________

Please make checks payable to: Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

CELEBRATE MISSOURI WINES

Take a look at what is going on . . . right here in our own back yard in Missouri. This two-part Members' Day event includes:

The Reinvention of Wine — The Missouri Experience

A panel discussion led by Mr. Robert Kabel, with panelists Lucien Dressel, Mount Pleasant Winery, on "French Hybrids," Larry Carver, Carver Winery, on "Vinifera," and Jon Held, Stone Hill Winery, on "America Vines & Varieties", 7:30 p.m., Thursday, October 9, 1986, Shoenberg Auditorium.

No reservations are required, but seating is limited. This free lecture is open to Members Only.

Winery Bus Tour, October 16

Tour the Stone Hill Winery and the Hermannhof Wineries in Hermann. This day-long bus tour includes wine tasting, a lunch of German style schnitzel and fresh apple cobbler, a winery tour, and visits to gift and sausage shops. With Mother Nature's cooperation, the fall colors will highlight this bus trip. This day trip will cost $30 per person, be all inclusive, and available by mail-in reservations only on an invitation you will be receiving in the mail.

NEWS FROM TOWER GROVE HOUSE

Craft Fair

The Auxiliary of Tower Grove House at the Missouri Botanical Garden will sponsor a craft fair and luncheon from 10:00 a.m. to 3:00 p.m. on Wednesday, September 24, 1986.

The fair will feature a variety of crafts such as handmade dolls, decorated boxes, miniatures, wooden cutting boards, jellies and apple-butter, flower arrangements, decoupage and many other items suitable for gifts for everyone.

The crafts will be displayed on the west side of Tower Grove House. In case of rain the fair will be held in the Ridgway Center. Box luncheons will be available in the Tower Grove House Tea Room.

Reservations for lunch are required by September 22, 1986. The price of the luncheon is $6.50 per person and is payable, in advance, to Tower Grove Auxiliary, P.O. Box 299, St. Louis, MO 63166. For additional information, call 577-5150. Proceeds from the fair and luncheon will be used to refurbish Tower Grove House.

Please make ____ reservations for the Craft Fair luncheon, Wednesday, September 24, 1986, Tower Grove House, between 11:00 a.m. and 1:00 p.m. Enclosed is my check for $ ____ , at $6.50 per person. Please make checks payable to: Tower Grove House Auxiliary.

NAME ____________________

ADDRESS ____________________

CITY ____ STATE ____ ZIP ________

Mail to: Tower Grove House,
P.O. Box 299, St. Louis, MO 63166

The beautiful fence surrounding the Herb Garden on the south side of Tower Grove House has been sandblasted to remove many layers of old paint. A shiny new coat of paint is being applied. The work was made possible through a gift from the St. Louis Herb Society.

Gifts and Requests

Tower Grove House has received some very useful gifts. Mrs. Newell A. Augur gave us two beatifully hand-knitted and fringed bed spreads. Mr. James LaMartina contributed a lovely two-piece white dress and two petticoats. We are delighted to add these items to the Tower Grove House collection.

On May 29, the northeast bedroom (January Room) in Tower Grove House sustained water damage during a severe rain and hail storm, necessitating replacement of the ceiling and the wallpaper border. Tower Grove House is in need of an old, room-size oriental rug for that room. Can anyone help?

Barbara Cook (left) and Midge Tooker

Guide News

The Garden Guides elected new officers for the coming year recently. Volunteers Barbara Cook and Midge Tooker will serve as co-chairmen of the MBG Guides this year. Nancy Thompson will be chairman of scheduling and Mary Ely the secretary-treasurer.

Two new programs the Guides are developing this year, which they hope will be of interest to Garden Members, are tours for adults prepared by senior guides with special expertise and a new format for training guides for the Garden.

The specialized adult tours are listed in the education brochure mailed last month. They are Gardening by Design, Native Missouri Trees, Sculpture and Fountains and the Japanese Garden. For more information on these tours, call Audrey Neiser at 577-5140.

In past years, Guide training has been in formal classes over a concentrated period of eight weeks. This year there will be a less structured program. It will be more flexible and on an individual basis, which should adapt itself to everyone's busier schedules. Those with an interest in the Garden, botany, horticulture and a love for people of all ages who are interested in becoming a Guide are encouraged to call Jeanne McGilligan at 577-5187.

International Legume Conference

In June, more than 240 scientists from over 25 countries spent five days at the Garden for the Second International Legume Conference. The conference, jointly sponsored by the Garden and the Royal Botanic Gardens, Kew, England, featured the presentation of more than 100 scientific papers on the "Biology of the Leguminosae." Conference participants posed outside of the Ridgway Center, above, during the meeting.

Garden Staff Identifies 100 New Species

One reflection of the amount of activity in the Garden's research program is the number of new species that the staff describes based on careful study of recently collected specimens from the tropics.

Recently, each member of the research staff was asked to submit a list of the new species described during 1985, and the results of this survey were added to the Garden's computer data base of information about tropical plants, TROPICOS.

The results of the survey indicate that the staff described 106 new species during 1985, essentially all of them coming from tropical and subtropical regions of Latin America and Africa, the main areas of concentration for the Garden's research programs.

Included in the total are 30 new species of the Iris family described from southern Africa by Peter Goldblatt, the B. A. Krukoff Curator of African Botany, and 26 species of Orchids described from Central and South America by Carlyle A. Luer and associates. Undoubtedly, many additional species were described at other institutions based on collections generated by our programs, and further additional new species resulting from collections made in 1985 will certainly come to light over the years as additional critical studies of them are made by the Garden's and other botanists.

From The Garden Gate Shop

Autumn Bulb and Plant Sale

The Garden Gate Shop celebrates a harvest of values at the Annual Holland Flower Bulb and Fall Plant Sale. The Members' Preview on Thursday and Friday, September 11 and 12 runs from 9 a.m. to 6:30 p.m., and features 20% savings. The sale opens to the public on Saturday and Sunday, September 13 and 14, from 9 a.m. to 5 p.m. The sale will feature Holland Flower Bulbs for every occasion, including new hybrids and old favorites for beautiful spring gardens. Colorful mums will also be available in hardy varieties for enjoyment year after year.

The Shop is stocked with tropical plants and garden related items such as fine tools and outdoor gifts. Don't forget the birds this year. See our fine selection of bird feeders.

Enjoy the great selections in the shop as well as in Orthwein Floral Hall. Members can shop in both places and receive 20% discount on all purchases.

September

The 1987 Missouri Botanical Garden Calendar, featuring photos by Garden Member Jack Jennings, is available in the Shop. The calendar is spectacular this year! See order form on page 15 for ordering by mail and gift orders. Also, be sure to pick up a 1987 Tropical Rain Forests engagement calendar published by The Basic Foundation.

Don't miss the beautiful new Missouri Botanical Garden Holiday Card featuring a scene from the Holiday Tree Display.

October

For Bookworms: The Garden Gate Shop features volumes of books for the scholar as well as for the weekend gardener. Paperback and hardbound references include books on general gardening, wildflowers, mushrooms, organic gardening, herbs, roses, orchids, flower arranging, lawns, trees, and birds. An assortment of cookbooks and a complete line of Brooklyn Botanic Garden handbooks and Ortho books are available. Please come browse in our book department.

The feature of the month in the Gift Shop is "Hearth Scents." Hearth Scents is a special potpourri blend of spices, herbs, forest botanicals, and pine cones. It fills the air with the fresh natural fragrance of outdoor mountains and forests. It is a new concept in decorative home fragrance.

Mark your calendars now for the **Christmas Preview,** Wednesday, November 5, and Thursday, November 6 in the Shop. Members will receive 20% off on all merchandise. Refreshments will also be served from 9:00 a.m. to 8:00 p.m.

LIBRARY RECEIVES GRANTS

The Missouri Botanical Garden's library has recently received a grant of $10,000 from the National Endowment for the Arts. The grant will help finance the conservation treatment of selected books from the Garden's rare book collection between April 1, 1986 and September 30, 1987.

A total of 135 books will be preserved via rebinding or full restoration. Twenty-seven of the rare books will be preserved in the Garden's Shoenberg Book Conservation Center, with the other 108 books sent to private conservators. The books are too valuable to send to commercial binderies.

The library has also been awarded a grant from the United States Department of Education to continue its ongoing project of recataloging and reclassifying its collections into an automated cataloging database (OCLC).

The grant award of $240,044 for OCLC entry will be shared with the New York Botanical Garden. The Garden's share is $104,370. The facilities boast two of the nation's most comprehensive botanical libraries.

A photograph in the July/August issue of the *Bulletin* incorrectly identified members of the Japanese American Citizens' League. They are, from left to right, Sam Nakano, George Sakaguchi, and Yuki Rikimaru.

1987 Calendar Order Form

Please send me ________ Missouri Botanical Garden Calendars at $9.95 each (plus $2.00 postage and handling).

NAME ____________________

ADDRESS ____________________

CITY ____ STATE _____ ZIP ________

TELEPHONE ____________________

☐ Enclosed is my check for $ __________.
Payable to: Missouri Botanical Garden

☐ Please charge:
VISA/MC No. ____________________

Expiration date ____________________

Name as it appears on card:

____

Mail to: Missouri Botanical Garden
Garden Gate Shop
P.O. Box 299, St. Louis, MO 63166

Plant Talk From the Gardenview Restaurant

Grapes

FOOD FACTS:

Viticulture had its beginnings in the area around the Caspian Sea generally considered the place of the origin of *Vitis vinifera* (Family Vitaceae), our most common grape. Grape culture spread to Greece, Italy, and eventually western Europe, with the Romans planting grapes on the Rhine River about 1 A.D. Today grapes are cultivated on all continents and islands suitable for its growth.

In the latter part of the 19th century a parasitic insect, the *Phylloxera*, invaded and destroyed most of the European vineyards. Fortunately, it had been discovered that the American varieties were resistant to this insect pest, so the European grape-growers began extensive plantings of the American rootstock on which, later, shoots of European varieties were grafted.

With a few exceptions, all grape varieties are cultivated in much the same way. In the United States, the European types *(Vitis vinifera)*, such as 'Thompson Seedless' and 'Flame Tokay', are characterized by skins that adhere to the flesh. They are grown mostly in the Southwest and California. The native American types derived from *V. labrusca*, or its hybrids, such as the 'Concord' have skins that slip free from the flesh and grow in an area east of the Rocky Mountains and north of the Gulf states. The muscadine types *(V. rotundifolia)* are not known for their hardiness and are cultivated primarily in the Southwest and Gulf states. Good drainage and moderately fertile soil are essential for grape cultivation. Grape vines grown to produce fruit with a high sugar content for eating, juice or wine, must be grown in full sunlight. Grapes require a lot of moisture and good drainage, and they use up soil nutrients quickly.

Featured in the Gardenview

Wine from Henry Shaw's Tower Grove House is for sale by the bottle in the Gardenview Restaurant. White is $7.00 per bottle and Red is $8.50.

FOOD TIPS:

Grape Pie

Preheat oven to 450°. Stem 4 cups blue grapes. Slip the pulp out of the skins. Reserve skins. Cook the pulp until the seeds loosen. Press through a collander to remove seeds. Combine pulp, skins and ¾ cup sugar, 1½ Tbs. lemon juice, 1 Tbs. grated orange rind, 1 Tbs. quick cooking tapioca. Let stand for 15 minutes. Prepare pie crust and line a 9″ pan. Fill with grape mixture and form a lattice over the top. Bake for 10 minutes at 450°, then lower heat to 350° and bake 20 minutes more.

Kids' Tips:

Grapes can be eaten fresh, dried to make raisins or converted into juice or wine. The cultivated types are numerous and their various characteristics put them into the two types, table or dessert grapes and wine grapes. Both types are, however, good for eating. Grapes also have digestive and therapeutic properties which are rare in other types of fruit and are considered very nourishing.

A grape is a result of clusters of flowers that, when mature, produce fruit which is basically the pulp (must). This fruit contains a sugary liquid, enclosed by a thin membranous skin, enclosing the seeds (grapestones). The watery pulp contains 20% carbohydrates (glucose and fructose) and has virtually no proteins or fats present, making them very nutritious. Grapes contain potassium, sodium, iron, magnesium and phosphorus which help in the balance of salts in the kidney and in the elimination of wastes. Grapes are also rich in vitamin C. B complex vitamins are abundant in the lighter colored varieties.

Wine is the liquid most associated with grapes and is the result of the alcoholic fermentation of the juice pressed from fresh or even partly dried grapes. Wines differ vastly according to different varieties of grapes, the soil composition, the climatic conditions, and the various treatments to which the juicy pulp and grapes are subjected.

— Dr. Kenneth D. Laser
Chairman, Education Department

For Younger Members

All About A Pumpkin

October is the month when pumpkins are given much attention, especially in celebrating **Halloween.** They are carved into jack-o-lanterns sporting funny or spooky faces. Sometimes their seeds are roasted and given out as Halloween trick-or-treats. The inside of the pumpkin is delicious to eat, and is often baked into bread or pie.

Have you ever visited a pumpkin farm or tried to grow your own pumpkins? Pumpkins belong to the same family of plants as squash and gourds. You may see many brightly colored squashes, gourds, and pumpkins grouped together when you visit the grocery store. The pumpkin is the fruit of the pumpkin plant. It grows on a long, trailing vine which has broad, prickly leaves. Pumpkins are harvested during the fall, after they have ripened into a bright orange color.

Visit a pumpkin farm or the grocery store to select your own Halloween pumpkin. Once you have made your selection, try some of the activities below. Most of all, have a safe and fun Halloween!

Jack-O-Lanterns

You will need: A medium size pumpkin with a stem, sharp knife, spoon, colored marker and an adult to help.

What to do: Use the sharp knife to cut around the stem of the pumpkin. Pull on the stem to remove the "lid" of the pumpkin. Scoop out all of the seeds and pulp inside the pumpkin. Decide what kind of face you want your jack-o-lantern to have. Draw eyes, nose, and mouth on the outside of the pumpkin. Using the knife, cut out each part of the face that you have drawn. Replace the lid on the top of your jack-o-lantern. On Halloween night, light the jack-o-lantern's face by placing a flashlight or votive candle inside the pumpkin.

Pumpkin Seed Trick-or-Treats

You will need: pumpkin seeds scooped out of a pumpkin; half stick of butter; salt; cookie sheet.

*__What to do:__ Wash the pumpkin seeds to clean off any pulp. Spread the seeds on a cookie sheet. Blot them with paper towels and then let them dry overnight. The next day, slice a half stick of butter into several small chunks. Drop the chunks of butter on the seeds. Place the cookie sheet in a 300° oven. Bake the seeds until they turn a light brown color — about 20 minutes. Stir several times while baking. Sprinkle salt over the roasted seeds, taste, enjoy!

**Do not roast all of the dried seeds. Save some for planting next spring. See if you can grow your own pumpkin plants!*

Pumpkin Bread

You will need: Ingredients: 1½ cups flour, 1½ cups sugar, ½ cup oil, 1 teaspoon baking soda, 2 eggs, 1 teaspoon salt, ½ teaspoon cinnamon, ½ teaspoon nutmeg, ⅓ cup water, 1 cup canned pumpkin. **Supplies:** large bowl, electric mixer, butter, bread pan, measuring cups and spoons.

What to do: Measure and combine all the ingredients into a large bowl. Mix together well with the electric mixer. Use a small amount of butter to grease the bread pan. Pour the pumpkin bread batter into the pan. Bake in 350° oven for one hour or until done. Delicious warm or at room temperature.

Pumpkin Slices

You will need: fresh pumpkin; butter; brown sugar; sharp knife; shallow baking pan.

What to do: Cut several small slices of fresh pumpkin. Place the slices in a shallow baking pan. Dot each slice with butter and sprinkle brown sugar on top. Bake the pumpkin slices in a 350° oven at least one hour, or until tender.

Moldy Pumpkins

You will need: a carved jack-o-lantern, several days old; magnifying glass.

What to do: When Halloween is over, do not throw away your carved Jack-o-lantern. Let it sit at room temperature for several days. Lift the lid each day to observe any changes inside the pumpkin. Grey-black mold may gradually begin to grow on the inside surface. Use a magnifying glass to observe the mold more closely. Does the mold grow more each day? Does its color change? Is there more than one kind of mold growing inside the pumpkin? What happens to the appearance and smell of the pumpkin?

— Ilene Follman,
Education Consultant

Garden Receives Operating Grant

The Garden has been awarded a $75,000 general operating support grant from the Institute of Museum Services (IMS). The money will help meet operating costs between July 1, 1986 and June 30, 1987. The award of $75,000 is the largest IMS makes individually.

"The IMS grant is unique in that the money is for operating costs only," said Patricia E. Rich, director of planning and development for the Garden. "Most grants are for specific projects. This money will help us in our day-to-day operation."

The Institute of Museum Services is an independent agency within the National Foundation on the Arts and Humanities and was established by an act of Congress in 1976 to assist museums in their educational role. IMS also helps museums modernize their methods and facilities, enabling them to preserve the nation's cultural, historic and scientific heritage.

Competition for IMS funds is strong, especially so this year, with 409 grants awarded from 1,345 applications received from museums nationwide. The grants are awarded on the basis of information provided on each organization's application for funding. After reviewing the applicant's chosen category (botanical garden, art museum, etc.) and budget, recommendations are made to the IMS director who makes the final decision on recipients of grants and their amounts.

Shell Companies Foundation Makes Operating Gift

For the fifth consecutive year, the Shell Companies Foundation has given $1,500 to support the Garden's day-to-day work in horticulture, research, education and community service.

The Shell Oil Companies give millions of dollars annually to philanthropic, education and service organizations, most located in communities where Shell operates, such as St. Louis. Shell is a national leader in corporate charitable giving and regularly makes gifts to encourage innovative work in science, engineering, business, the arts and public affairs.

Botanical Garden Subdistrict Commission Elects Officers

The annual meeting of the Botanical Garden Subdistrict Commission was held on May 6, 1986. At this meeting, the following commissioners were elected to one year terms as officers of the Commission: Mrs. Betty Farrell, Chairman; Mrs. Pamela Shephard, Vice Chairman; Mrs. Marjorie M. Weir, Secretary; and Mr. Walter G. Stern, Treasurer.

Mrs. Sandra H. Bennett is the immediate past chairman of the Commission.

Missouri Arts Council Award

The Missouri Botanical Garden was recently awarded $44,500 from the Missouri Arts Council. These funds will help support programs in visual arts, theater, and music, including landscape architecture, the Japanese Festival, and performances at the Garden by of the Black Repertory Company.

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Happy Halloween!

Henry Shaw will return
to his Garden accompanied by
his winsome woodland witches and
goblins, ghosts, jugglers and magicians,
as well as judges for the costume contest
to be held on October 26, 1986 from 5 p.m. to 8 p.m.
Adults admitted only with a child.

Hauntingly yours,
Hepatica, Witch

Costumes suggested!

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VOLUME LXXIV, NUMBER 7 NOVEMBER-DECEMBER 1986

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The BULLETIN is sent to every Member of the Garden as one of the benefits of membership. For a contribution of as little as $35 per year, Members also are entitled to: free admission to the Garden, Shaw Arboretum, and Tower Grove House; invitations to special events and receptions; announcements of all lectures and classes; discounts in the Garden Gate Shop and for course fees; and the opportunity to travel, domestic and abroad, with other Members. For information, please call (314) 577-5100.

Postmaster: send address changes to Lee B. Fox, editor, BULLETIN, P.O. Box 299, St. Louis, MO 63166.

Comment

Garden Aids Cancer Research

As we go to press, the late breaking news is very good indeed. I am pleased to announce that the Missouri Botanical Garden has just been awarded a five year contract by the National Cancer Institute, a division of the Department of Health and Human Services.

The contract will provide more than $650,000 for plant collecting activities in southern Africa and nearby islands. Garden scientists will provide specimens from their work in that area to the National Cancer Institute, where the materials will be screened for potential cancer treating agents.

This award is exciting from many points of view. First, it recognizes the preeminence of our research program in this area. In 1970, the Missouri Botanical Garden was designated the United States center for the study of African botany. Of our more than 3.5 million herbarium specimens, about half a million are of African plants. We have six full time research botanists working on the flora of Africa. Dr. Peter Goldblatt is the B.A. Krukoff Curator of African botany. Dr. Robert Magill is working on the moss flora of southern Africa. Drs. Lawrence Dorr and Porter P. Lowry, II are working in Madagascar, Jon Lovett is working in Tanzania, and Dr. Duncan Thomas is working in Cameroon.

Additionally, this award complements the Garden's aims by helping to support plant collecting in areas of prime importance to our research program. Finally, while Garden scientists are expanding the body of knowledge related to our natural world, we will be assisting other scientists who are seeking ways to use the world's biological diversity to promote human welfare.

Peter H. Raven

Tax Law Changes Could Affect Your Contributions

Most donors, of course, give first to the Garden and our other charitable concerns and think about the tax consequences later. In fact, the Garden and other institutions received many major gifts before the original tax laws were enacted. But it would be judicious, this year, to make sure that any giving that we plan to do is combined with the maximum permissible deduction.

There are three key areas of charitable giving that will be different under the new law: tax brackets will be lowered, which will mean that the after-tax cost of a gift will increase; gifts of appreciated securities or other property may be subject to the alternate minimum tax; and 1986 will be the last year in which non-itemizers may deduct charitable gifts.

This means that you should get in touch now with your attorney or tax advisor to plan out your strategy, not only for 1986, but for those years beyond when the drop in tax rates may mean more disposable income to factor into your charitable giving.

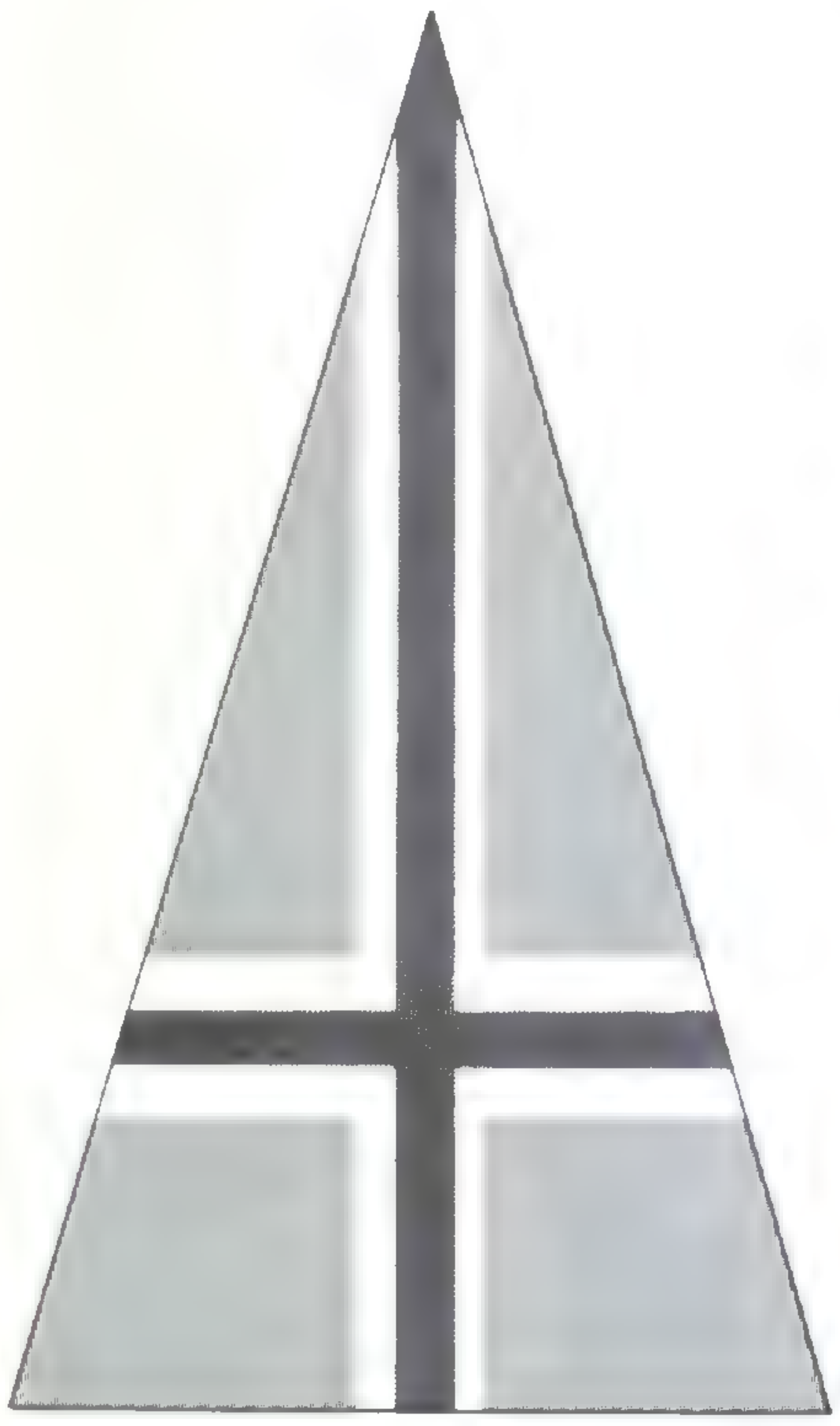
The Garden is ready to work with you or your advisors to shape a plan that is most effective for your circumstances. Patricia Rich of our development office will be happy to discuss this with you, 577-5120.

A recent gift by Paul Lux and family in memory of his mother, Caroline Newman Lux, has made restoration of the pool, coping, and re-laying of the brick floor in the Linnean House possible. The sculpture in the pool is by Wheeler Williams and is titled "Anphitrite," one of the Naiads of Greek mythology.

A little piece of Switzerland has been carved from the majestic Alps to set the scene for the 1986 Holiday Flower Show. To make this tiny Swiss community feel right at home, the scene is nestled among its European neighbors whose trees adorn the spacious Monsanto Hall this holiday season.

Each European country is the creation of one of St. Louis' fine new floral designers. The designers were chosen for their artistic talent and the promise they exhibit for the future. Every tree is a return to that country's most traditional expression of the holiday spirit.

TREE EXHIBIT AND HOLIDAY FLOWER SHOW



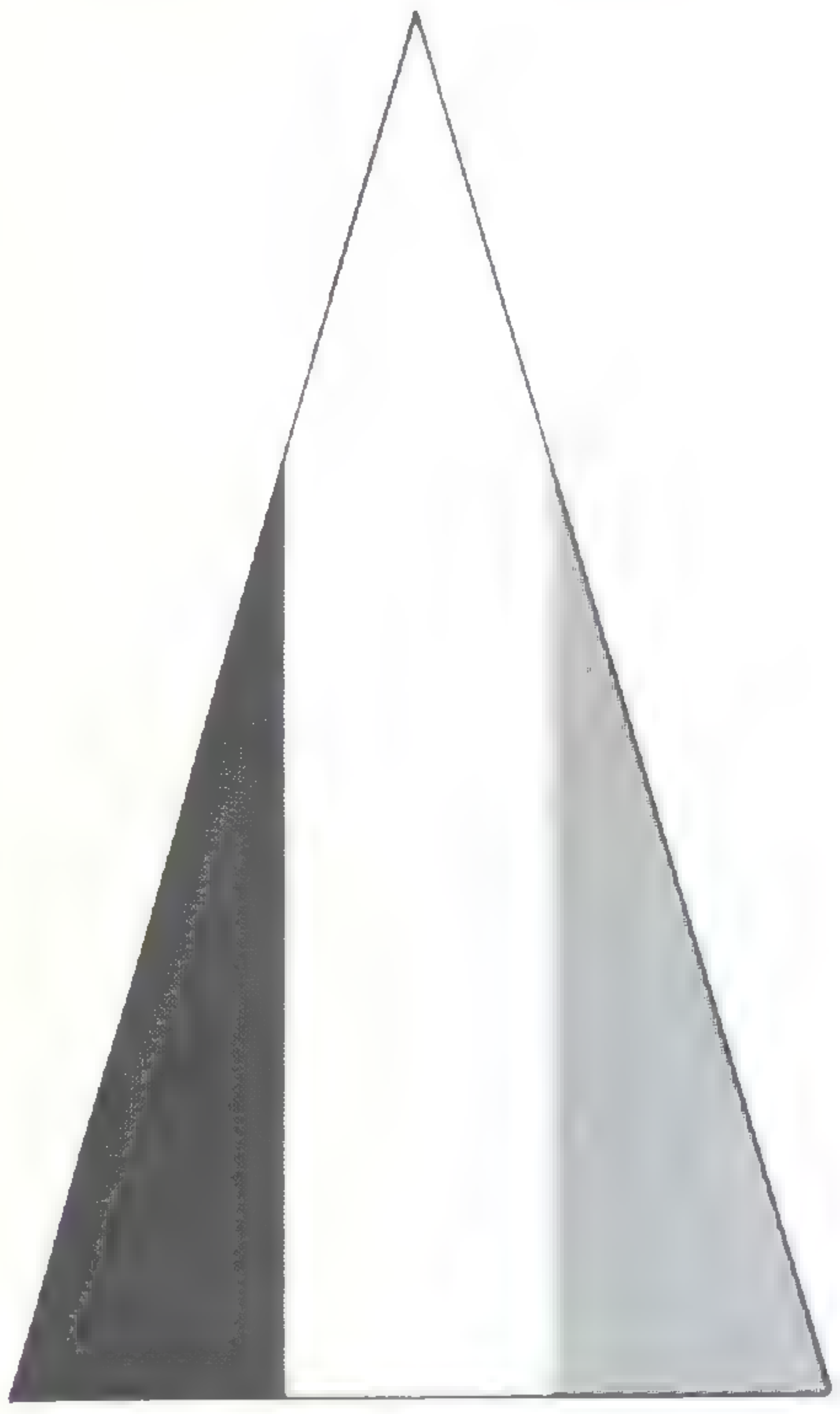
ENGLAND

The traditional English Christmas celebration includes the lighting of a Yule log, decorating with evergreens and mistletoe, the Wassail Bowl, plum pudding and carol singing. However, decorated Christmas trees did not become wildly popular until the 1840s, during the reign of Queen Victoria. Early tree decorations often included paper baskets and cornucopia filled with sweets, oranges, apples, paper roses, ribbons and tiny lace-trimmed paper fans. They often lit the tree with as many candles as days in a year.

The Victorians are also credited with beginning the custom of generosity and charity we have come to associate so closely with the Christmas season. The Victorians definitely rediscovered and redefined the Christmas observance, adding a very humanitarian approach to the season.

This tree, created in the tradition of the Victorian era, is complete with lace, ribbons, flowers and cornucopia. It is dedicated to the benevolent spirit of the English Victorian Christmas celebration.

■ *Karen A. Johns*
Wild Lace Florist, 13402 Clayton Road



FRANCE

The French Baroque Christmas Tree is distinguished by repeated design and elaborate decoration. Celestial cherubs, used as an art form in classical architecture, demonstrate this technique. Gold beads and ribbon further enhance the opulent style of this era.

Joyeux Nöel á tout le monde!

■ *Patrick Hereford, Jobie Andrew*
Hereford Andrew Design, 4374 Lindell Boulevard

continued

GERMANY

Germany is a nation steeped in Christmas lore, and much of the world's Christmas tradition, and certainly the Christmas tree, is of German origin.

The most prominent ornament on the German tree is the "Christkindl Licht," the golden-haired angel with a golden crown and wings, the personification of the ideal of gift giving. Each Christkindl is hand-crafted and clothed. She appears with her finely painted porcelain head in white flowing robes, in traditional German peasant dress and in long, pleated, metallic foil skirts. The Christkindl is in the company of earlier legendary gift bringers: Thor, with his bearded face and peaked hat, and St. Nicholas in his bishop's robe.

Shiny red apples recall the traditional paradise tree in the performance on Christmas Eve in the Middle Ages of the mystery play, depicting Adam and Eve in the Garden of Eden. White cookies in geometrical shapes, brown cookies in the shapes of animals and men, and German Springerle cookies adorn the tree. Additionally, the tree is decorated with blown-glass ornaments of various shapes. Such light-weight, blown-glass ornaments were invented and first made in the German town of Lauscha. Such is German tradition!

■ *Dodier Alber, Barbara Heneisen*
Sister Star Floral Design, 2022 S. Twelfth Street

ITALY

The nativity is the heart of Christmas Italiano with the tree and its ornaments symbolic tributes to the spirituality of the season. In fact, most Italian homes do not have typical Christmas trees, but rather a triangular wooden frame (ceppo) which represents the Yule log and its flame. The essence of the religious festival is retained by featuring Romanesque angels atop and throughout the evergreen. Gold cording, pine cones, fruit, candles, and tiny imported lights give life to the whole.

One of the most charming and unusual Italian traditions is the shepherds' advent. These brightly clad mountaineers visit the townspeople, playing a bagpipe-like instrument and stopping at each home asking if Christmas is to be kept within. When the family says "yes," they leave a wooden spoon to mark the place and return to sing carols there later. The wooden spoons in this tree, then, signal shepherds everywhere that Christmas will surely be kept here as well! ■ *Steven Bess, Robert L. Davis*
Designs of Distinction, 7700 Delmar Boulevard

HOLLAND

In Holland, the Netherlands, they originally celebrated St. Nicholas Day, December 6. This tree depicts St. Nicholas, or "Sinter Klaas," a bishop from Spain dedicated to the welfare of children. The tree reflects the Dutch children's tradition of filling their wooden shoes with hay for his horse in return for candy and toys had they been good. You will notice as well the cakes on the tree called "Letterbanket," made by the Dutch in the family's first letter or smaller initial cakes for the family's members.

Saint Nicholas, my dear good friend,
To serve you ever was my end,
If you me now some things will give,
Serve you I will as long as I live.

■ *Randy Felkey*
Randy Felkey Florals, 9820 Clayton Road

SCANDINAVIA

It is the traditional custom in Scandinavian countries to use simple and organic materials that play upon the theme of nature when decorating the holiday tree. This translation of a Scandinavian Christmas uses hand-carved wood items, straw wheat, holly, and wax and hopsack ribbons. The colors, much like our own, are red and white on branches of deep green. Angels and hearts of straw and fiber hang suspended among the boughs. Birds of wood, clay, and feathers will alight and fly above the tree carrying strands of straw and streamers. Curious visitors to this tree of Scandinavia will see small, carved ancient shapes and familiar faces reflecting back at them. Hearts and baskets of beeswax remind us of the recent harvest. The entire shape is defined by white candles standing at attention. Clusters of berries and holly garnish and add interest and depth to the tree's branches. The tree is topped with an elaborate angel with tiny lighted candles adorning it as it presides on its lofty throne.

■ *Don Thebeau, The Flower Petaler*
620 South Main Street, St. Charles, MO

The 1986 Holiday Tree Exhibit and Flower Show has received major corporate sponsorship from CITICORP. Special thanks to Ted Drewes' Christmas Tree Lot for the donation of the trees on display.

A special Members' tree will also be on display, decorated with the 1986 Garden ornament for each gift membership purchased during the holiday season. A similar ornament will be given with each gift membership purchased.

The Holiday Flower Show, tree exhibit, and Member's tree will be on display from December 6 through January 4, 1987. Don't forget the Members' preview Friday, December 5, 5:00 to 8:00 p.m.

Report from Venezuela/by Dr. Julian A. Steyermark

EXPEDITION TO THE LOST WORLD

Above: Intermediate camp set up on the shoulder of Camarcai barai-tepui.

I RECENTLY RETURNED from Venezuela, where, accompanied by my assistant, Bruce Holst, and Ronald Liesner of the Garden staff, we completed an expedition into that part of the Venezuelan Guayana, popularly known as the "Lost World" of Conan Doyle fame. The expedition was made possible by funds provided by the National Geographic Society and the Terramar Foundation, the latter based in Venezuela.

The high summits of various isolated sandstone mountains, where thousands of poorly known plants are endemic, was the object of our exploration. In this particular instance, the summits of three of these mountains, known as "tepuis" (Murisipán-tepui, Tereké Yurén tepui, and Amaruay-tepui), were successfully reached, the first two by helicopter, the third by foot.

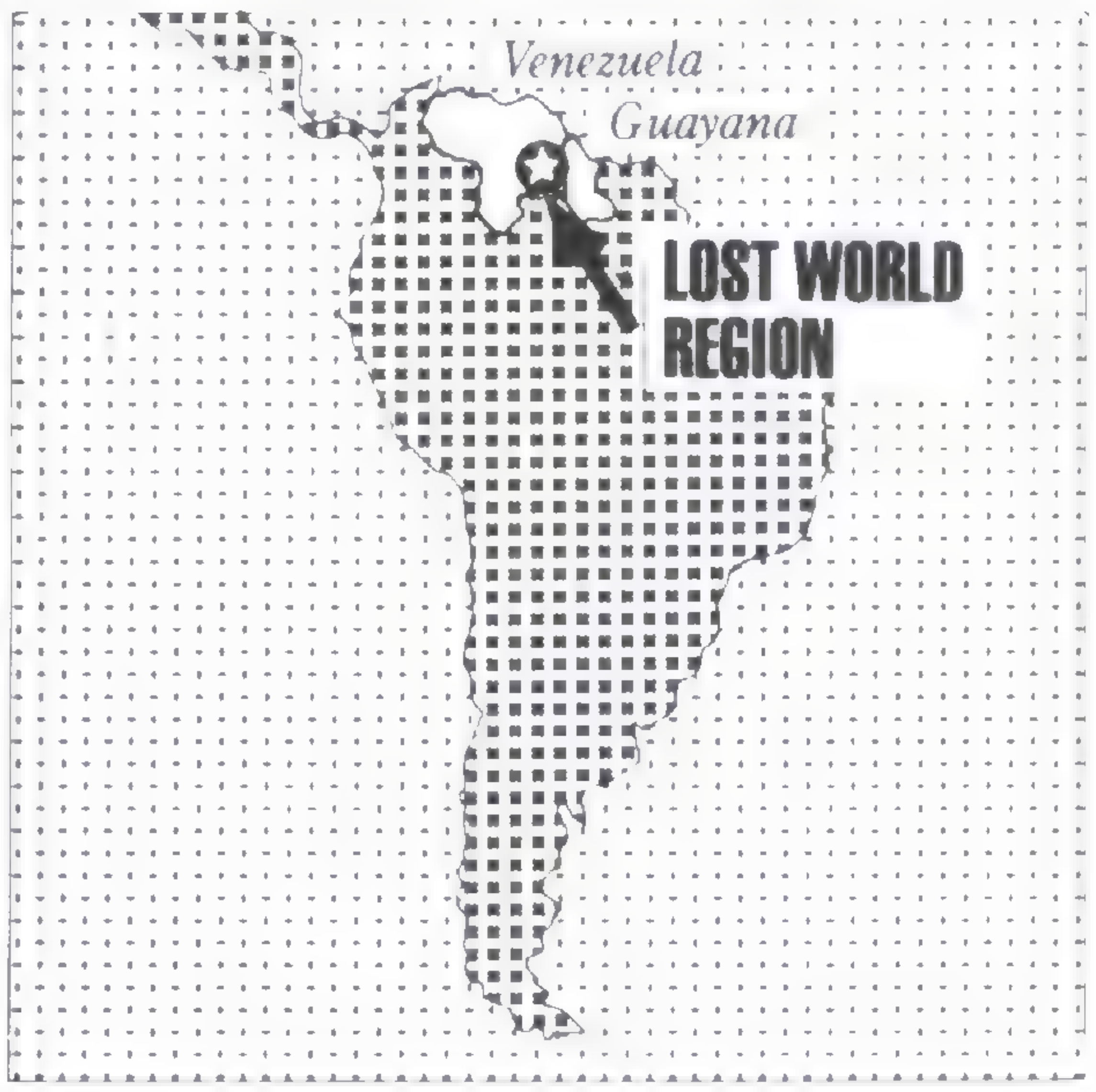
Ever since 1944, when I first explored the previously unknown Ptari-tepui in Bolivar state of southeastern Venezuela, I had wanted to visit the four tepuis standing sentinel-like between Ptari-tepui on the east and Auyan-tepui on the west. They range in height between 1,900 and 2,500 meters above sea level. No single person had ever been to their summits. They are all walled in on all sides by sheer vertical sandstone bluffs varying from 300 to 1000 meters high and protecting them from any intruders. Their only means of ascent, except by expert alpinist climbers, was by helicopter.

Here then had been the challenge of our expedition: to reach the summit by helicopter. In 1978, while on an expedition with the explorer, Dr. Charles Brewer-Carias, I had flown over these tepuis by helicopter hoping to land on one of them. However, the pilot, upon seeing the highly eroded summit of Aparamán-tepui, a pile of fantastically carved rocks dissected into narrow canyons and fissures, decided it was no place for a decent helicopter to make a landing and rapidly flew away.

So it was that 1986 became the year chosen for an exploration of these previously unknown summits. During the early part of 1986, Dr. Otto Huber of Venezuela, studying the savanna-like vegetation of the high summits of this area, landed by helicopter on one of these tepuis, namely Camarcai-barai tepui, and made a small collection in the course of a day. His collection was the first ever to have been made from the area. That left the remaining adjacent three tepuis yet to be investigated.

While waiting for our helicopter to appear, the one which was planned to carry us up to the long-hoped-for landing on the summits, we set up a base camp situated in a large savanna by a beautiful gallery forest bordering the Acanán River, a tributary of the Carrao River. This forest had many species of tall trees, which Bruce Holst expertly climbed with his special climbing equipment and collected flowers and fruits necessary for the identification. In this way an excellent representation of the tall forest flora of the lowland area of this part of the Venezuelan Guayana was obtained.

In order to take advantage of the delay caused by waiting for the helicopter to arrive (three weeks altogether), Holst and Liesner completed an arduous ascent by foot up to the summit of nearby Amaruay-tepui, one of two smaller tepuis known as "Los Hermanos," whose altitudes reach slightly over 1,000 meters above sea level. As no scientist had ever visited Amaruay-tepui, our collections were the first ever to have been made from the mountain. The ascent to its summit was made along a steep forested slope, since the rest of the mountain is walled in by sheer vertical sandstone bluffs. The summit was found to be almost completely covered by a dense forest varying from small to tall trees. Many unusual species were collected here. Later on, toward the close of the expedition, another trip was made to the summit, this time by helicopter which dropped Liesner, Holst and me on to a small savanna surrounded by dwarf forest.



Finally, the time had arrived for the helicopter to appear, and plans were made accordingly to coordinate several trips back and forth to carry all the camping equipment, collecting materials and food sup-

continued

plies to a landing spot on one of the four tepuis. The place finally selected was on a shoulder of Camarcai-barai tepui at an altitude of 1,800 meters. From here we had hoped to reach the summits, which were walled in by sandstone bluffs.

The general area of the camp site was located in the midst of a large, open, wet savanna-like terrain with nearby patches of dwarf forest. The abundant rains at this time of year (late May) left the ground soaked, spongy, and slow to walk on. This made it difficult to select an ideal camping spot for pitching tents. Every inch of terrain immediately surrounding camp was covered with a thick, profuse mass of plant growth consisting of all kinds of rare and endemic species and genera unknown elsewhere.

Every inch of terrain immediately surrounding camp was covered with a thick, profuse mass of plant growth consisting of all kinds of rare and endemic species and genera unknown elsewhere.

Here the low herbaceous vegetation was dominated by the fan-like leaves of the yellow-flowered *Stegolepis* of the Rapateaceae family, the spectacular South American pitcher plant (*Heliamphora*) with delicate white and pink tulip-like blossoms, Bladderworts (*Utricularia*) bearing yellow, lavender, rose, and red flowers, white-headed pipeworts of the Eriocaulaceae family, small iris-like leaves of the yellow-eyed grass family (Xyridaceae), tube- or trumpet-shaped leaves of *Brocchinia* of the Pineapple family (Bromeliaceae), ornamental four-ranked grass-like leaves of the sedge, *Everardia,* and many more botanical gems.

The nearby forest was dominated by the dense small bronze-colored foliage surmounted by the pinkish flowers of *Bonnetia roraimae* of the Camellia family (Theaceae). It was associated with a large number of other small trees, such as holly (*Ilex retusa*), *Clusia, Weinmannia,* red-flowered *Raveniopsis,* magnolia-like flowers of *Moronobea, Aspidosperma,* and *Schefflera,* the latter with large palmately compound leaves. This type of forest was unique in that the trunks and branches of the trees sent out elongated, curving, twisting, or horizontal stems forming an interlacing recumbent growth inpeding one's progress through the forest, and making it necessary to cut through or climb over the obstacle. The moist environment was a haven for the abundant ferns, mosses, and liverworts which covered the trunks and stems.

One of the great surprises in this forest was the discovery of a beautiful giant lady-slipper orchid, reaching a height of 2½ meters (about 8¼ feet) from ground level. We identified it as *Phragmipedium lindleyanum,* a rarely collected terrestrial orchid known to occur only in the Lost World section of Venezuela and adjacent Guyana. It is new to the Missouri Botanical Garden's herbarium collection of over 3.5 million plants.

We collected on this shoulder of Camarcai-barai tepui for three days and nights and found many other strange and rare plants found nowhere else outside of this Guayana part of Venezuela. Due to the ever prevalent rains and clouds, which made it impossible for us to depend on further helicopter support at that time of year, with the possible risk of our being left stranded indefinitely without being able to move back to base camp, it was finally decided to abandon the mountain camp at the 1,800 meter level, move back to base camp when the helicopter arrived, and proceed to the summit from base camp by helicopter as soon as possible.

After we were taken back to base camp, our next move was to reach the summits of these mountains, which had for such a long time eluded us. We fortunately succeeded in getting to two of them. Liesner landed on Tereké Yurén tepui, while Holst was set down on Murisipán-tepui. I had to be content with reaching a plateau projecting south from Murisipán-tepui at the 1,800 meter level, since too many clouds interfered with my attainment of the summit of Camarcia-barai tepui. It was also impossible to land on Aparamán-tepui, because the pilot could find no feasible strip of rock large enough or sufficiently flat enough for even a helicopter. This last tepui, we believe, will someday be conquered by expert alpinists, but for the present it seems invincible.

In the brief time afforded Liesner and Holst to explore the summits of the two mountains, they collected plants as rapidly as possible in the limited time permitted by the helicopter.

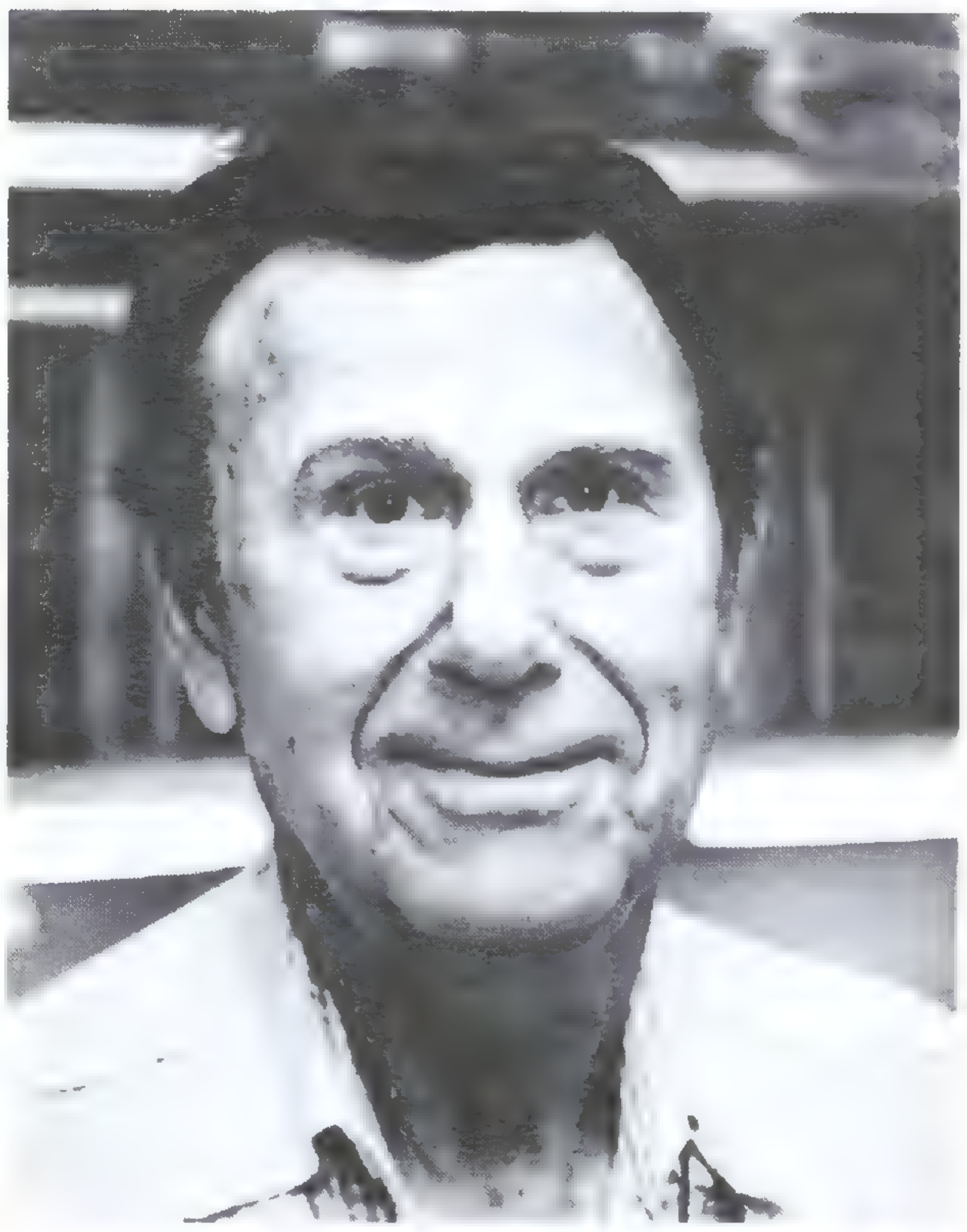
Although separated from each other by only several kilometers, the summits of these two tepuis (Murisipán and Tereké Yurén) were found to have a surprising difference in floral composition as well as in general appearance. The summit of Murisipán-tepui, at 2,300 meters where Holst collected, was dominated by expansive sandstone formations, fissures, and grottos, with essentially little vegetation. On the other hand, the summit of Terké Yurén tepui, worked by Liesner, at 1,900 meters, although rocky and highly eroded into strange formations and fissures, had more vegetation cover in general.

One of the prize discoveries from the summit explorations was the occurrence of the genus *Chimantaea,* a weird member of the Aster family with its simple unbranched thick stem topped by a cluster of thick hairy leaves. It is known to occur only on the summits of three other tepuis of the Lost World and nowhere else. The new find, made by Holst, extends its range now to another tepui where it reaches its most northeasterly limit. Many other beautiful and bizarre plants were found by these botanists who worked on different mountains to achieve their results.

A grand total of 1,600 numbered collections, comprising approximately 8,000 specimens, were obtained from the expe-

Top: Bruce Holst, left, and Julian Steyermark at the base camp preparing some of the plants they have collected for shipment back to the Garden.
Above, left: Ron Liesner, right, getting ready to hike to the top of Amaruay-tepui with the help of two locals, Gregorio and Cesar Cardona.
Center and right: Giant ladyslipper orchid, *Phragmidpedium lindleyanum*, found only in the Lost World region.
Bottom, right: Prize find of the expedition was this specimen of *Chimantaea*, far right, found by Bruce Holst on Murisipán-tepui.

dition. The majority of the plants collected were previously unrepresented in the Garden's herbarium and have added numerous new records and range extensions of rare and unusual species. They thus form a most valuable addition to the collection of the Missouri Botanical Garden. Until the entire collection has been completed for study, it is not possible to state the numbers of species new to science, but it is believed that a considerable number of novelties will result. ■



Dr. Steyermark

CHAMPION PLANT COLLECTOR RECEIVES GRANTS

Dr. Julian A. Steyermark, a curator at the Garden and the "champion plant collector" as listed in the 1986 Guinness Book of World Records, recently received two grants from the National Science Foundation and the National Geographic Society.

Both grants will help support Steyermark's work on a book entitled "Flora of the Venezuelan Guayana." The Venezuelan Guayana includes the so-called "Lost World" area of Venezuela made famous by Conan Doyle's novel (see accompanying story). A total of 10,000 different species are estimated to occur within the area, one-half of which cannot be found anywhere else in the world. The book is scheduled to be published by the Garden by the end of 1988.

The National Science Foundation grant of $95,000 will help pay for the book's illustrations and to help finance trips to study plant collections in Venezuela and the United States. The National Geographic Society's grant of $20,188 will enable Steyermark to make several field trips to Venezuelan Guayana.

Steyermark is an authority on the flora of Venezuela, and has devoted nearly 30 years to its exploration and study. He is credited with collecting over 138,000 plant specimens. As a result of his work, Steyermark has discovered hundreds of species, several genera, one family new to science, and hundreds of species new to the flora of Venezuela.

NEWS FROM THE EDUCATION DEPARTMENT

Instructors Program Needs Volunteers

Gerry Steinhart is helping students learn how to plant a desert plant.

Do you like to work with plants? Do you like to work with children? If the answer is yes to both, the Garden's Volunteer Instructor Program might just be the right program for you.

The volunteer instructors are a dedicated group of people from varied backgrounds who teach a variety of classes in botany, horticulture and natural history to students from St. Louis area schools. They teach throughout the academic year to youngsters ranging in ages from preschool through high school.

Volunteer instructor Carol Winklemeyer considers children and plants as her two biggest joys. She said she feels she has developed a deeper understanding of how children see the world, and has been able to work closely with them through this program. Instructor Mary Loire said that if one child in thirty says "I get it," or "thank you," the time has been worth it. While she teaches, she learns, which she said she finds a good challenge.

Nan Day and Mary Ely are both volunteer guides and instructors. Nan enjoys the opportunity to get the children personally involved through skits, puppet and slide shows, and potting plants. Mary loves the opportunity to teach children who have never had the chance to come to the Garden before.

The rewards of teaching are many, from the time a little boy threw his arms around Yolanda Wanek's legs and said, "Mrs. Wanek, I love you," to a memory which Bea Perrin had in her Transplanting Seedlings class. One little child had not planted a wilting broccoli plant laying on the table. When asked why they didn't plant it, the child replied, "If I planted it, it would grow, and my mom would make me eat it!"

Katherine Chambers finds the instructional materials provided by the Education Department staff well organized and easy to use. Sue Ann Bowen sums it up, "If you enjoy teaching and gardening, the Instructors Program is a good combination."

If you would like to join the Volunteer Instructors Program or are interested in finding out more about this program call Jeanne McGilligan at 577-5187.

TRAINING TEACHERS

The Education department at the Garden is only one of many cultural resource agencies attempting to improve the quality of science teaching in our nation's classrooms. This is primarily being done by offering teacher training workshops or symposia to public, private and parochial school teachers of the St. Louis area.

This summer, the Garden was selected as one of seven museums in the United States to attend a conference on improving the quality of science classroom teaching for elementary teachers held in Washington, D.C. This conference was sponsored by the National Science Resource Center and the Smithsonian Institution. Dr. Kenneth D. Laser, chairman of the education department, gave a joint presentation with the St. Louis Science Center of program offerings for students and teachers.

The seven public school representatives attending the conference were looking for ways in which museums, botanical gardens and zoos can interface their model curricula with those of the public schools. Laser indicated that, "the overwhelming majority of teachers and administrators at the conference spoke of the need for the continued programs and teacher training workshops offered by museums such as the Garden to assist in improving the quality of science in our schools."

This is the last year of a three-year grant to the Garden of $60,000 from the National Science Foundation and the National Science Teachers Association for the Chautauqua Short Course for Teachers of Science. The Chautauqua Short Course will update 30 teachers in ecology and environmental science concepts and issues and ways in which to develop curricula building on the information gained from the two day fall workshop. In a six month interim period the teachers will develop, use and evaluate the materials with their students and meet again for two days in the spring to assess their results and share their curricula with other participants. This will be followed by lectures and field experiences at Shaw Arboretum using the Adylne Freund Center and many Arboretum ecosystems.

This summer 29 teachers from the St. Louis area participated in the first Summer Institute in Environmental Sciences for teachers (K-12) sponsored by the National Science Foundation. A three-year grant of $142,000 enables the Garden to assist teachers is updating themselves in ecology and environmental science and develop an independent project for classroom use. This 24 day intensive workshop held during July brought in experts to present and discuss environmental concerns and topics. The participants also discovered local and regional agencies which could be used by their students in the academic school year.

The Summer Institute participants spent half of their classroom time at the Garden and the other half at various resource sites and Shaw Arboretum.

For more information regarding the 1986-87 Chautauqua Short Course for Teachers of Science and 1987 Summer Institute, interested individuals should contact the Education department at 577-5140 or Dr. Laser at 577-5139.

Plants To Remember

Two Rare Species at the Garden

Being the "Gateway to the West," St. Louis was a fortunate location for the Missouri Botanical Garden in terms of western botanical exploration over a century ago. In the early years of the Garden, physician and botanist George Engelmann received specimens from western explorers and did limited exploring for plants himself. An *Agave* that a correspondent sent Dr. Engelmann from the Pacific shore at the border between California and Mexico was so attractive that he brought it into cultivation at the Garden and named it *Agave shawii* with the following remarks:

"A remarkable species, which will flourish, highly esteemed by amateurs as one of the most striking and beautiful Agaves, and commemorate, among all who love horticulture in other climes, the name of Henry Shaw, already so highly esteemed in St. Louis as the founder and donor of the 'Missouri Botanical Garden,' grand at present, and promising a future as useful as it will be magnificent."

As understood by modern botanists, the species *Agave shawii* is subdivided into a pair of subspecies. One of these (*A. shawii* subsp. *shawii*) inhabits the northern coastal strip of Baja California. Differing chiefly by its larger stature, the other subspecies (*A. shawii* subsp. *goldmaniana*) is found just south of and inland from subsp. *shawii.*

Individuals of *Agave shawii* flower repeatedly, but not often. Flowering occurs at the ends of branches as they mature, which requires between 20 and 40 years in the wild.

The species finds some application in Pacific seaside landscaping today and has a couple of additional uses in its past. American Indians are thought to have valued the tender growing tips as food and to have derived cordage from fibers in the leaves. Much later, in the 1950's a commercial venture set out to exploit *Agave shawii* for its fibers. The effort failed, but not before the small population suffered considerable damage. This coupled with land development reduced population levels to the point that in 1980 the California Native Plant Society listed *Agave shawii* as endangered throughout its range.

On your next trip to the Garden you may enjoy seeing three young individuals of this species deeply rooted in our history and displayed in the Desert House.

Inhabiting the opposite side of the world, the genus *Eupomatia* is the sole genus of the family Eupomatiaceae, a family of just two species. The more widespread of these, *Eupomatia laurina,* lives along the east coast of Australia, in New Guinea, and in the Climatron. If you choose to see it in the Climatron, you will find it thriving at the south end of the bed that surrounds the bog exhibit on the upper level. (The other species is confined to the east coast of Australia.)

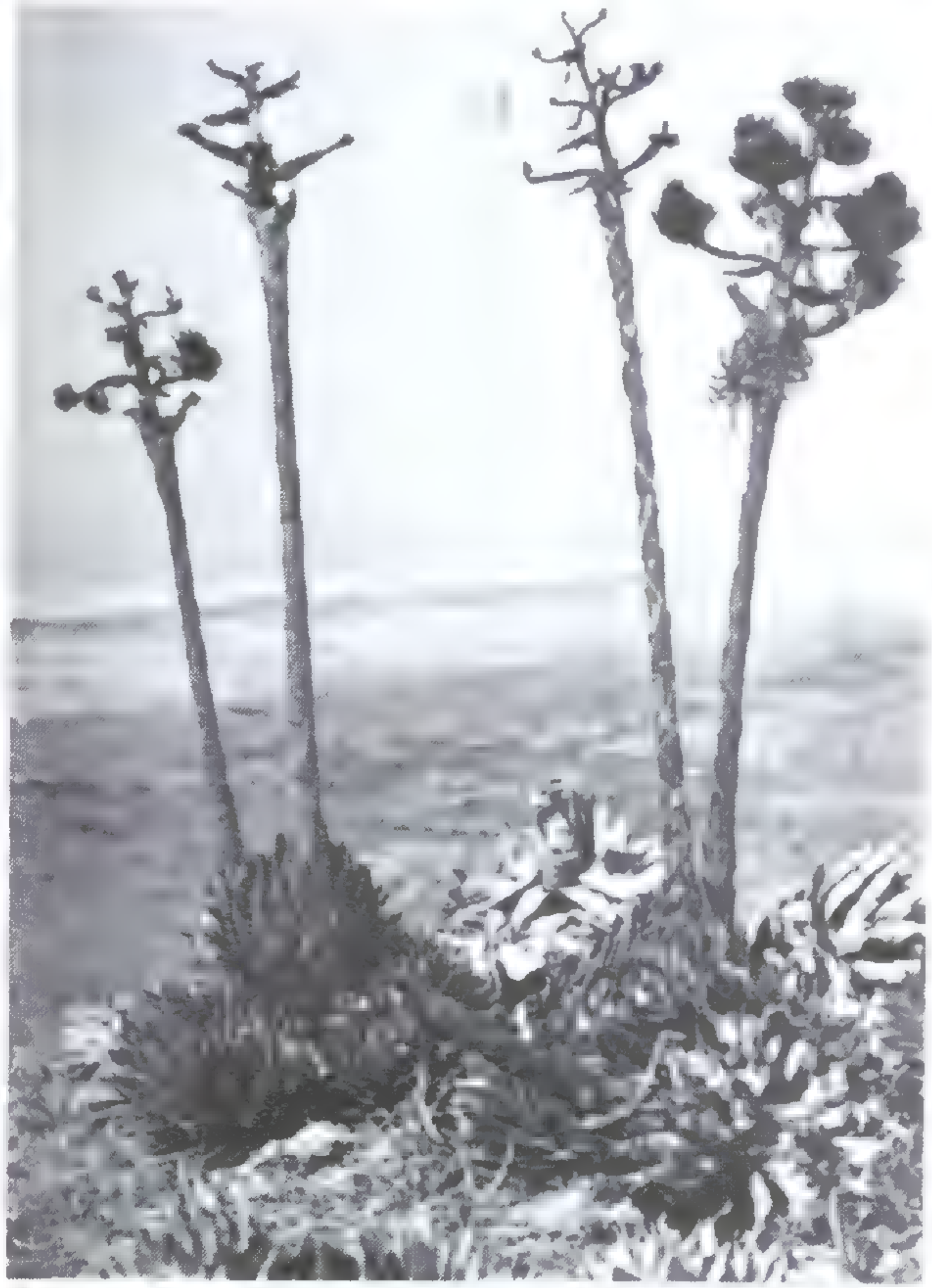
Eupomatia laurina is a shrub or small tree with white flowers, these about an inch and a half in diameter and having numerous white stamens (pollen-producing organs) that on first glance look like petals (there are no petals). Not only are the stamens deceiving in appearance, but also the buds look like fruits. That is, rather than being covered by a group of sepals as in most flower buds, a bud from *Eupomatia* is covered on top with a hemispherical cap known as a calyptra. Topped in this way, the bud is spherical and smooth until it opens. At this time, the calyptra falls away intact, looking a little like the lid falling from a miniature backyard kettle barbecue.

Eupomatia is of theoretical interest for showing characteristics suspected as present in primitive flowering plants, although the evolutionary origin of flowering plants remains an active area of research. Probable primitive traits to be seen mixed with more specialized features in *Eupomatia* include numerous separate stamens, carpels (the seed-producing organs) interpretable as reflecting evolutionary development from leafy structures, and pollination by beetles.

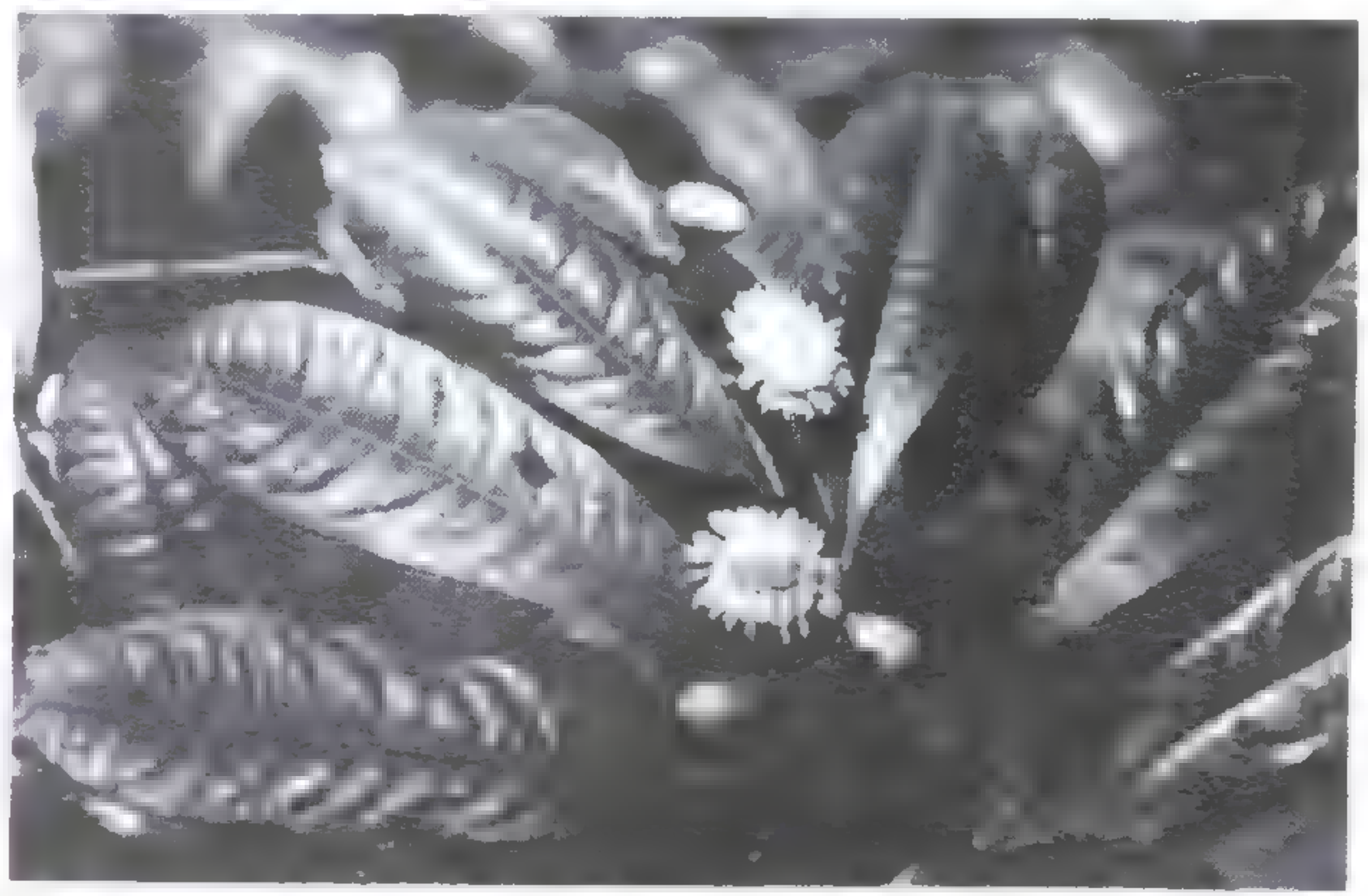
Beetle floral visitors encounter no nectar; instead, they consume special stamens toward the center of the flower that serve as food rather than to produce pollen. Similarly modified feeding stamens turn up in other beetle-pollinated flowers, such as the *Victoria* water lilies and Carolina allspice (*Calycanthus floridus*) here at the Garden. (See the *Calycanthus* in the Scented Garden.)

Among the benefits of botanical gardens are that they provide protective cultivation for rare species as their habitats dwindle. They also provide visitors a chance to enjoy and learn about such species before it becomes too late to make their acquaintance. Most rare species have various combinations of uses, potential, histories, involvement in scientific questions, and beauty worthy of plenty of attention. *Agave shawii* and *Eupomatia laurina* are natural highlights for your next visit to the Garden.

— George Rogers, Ph.D.
Horticultural Taxonomist



Agave shawii in its habitat on the shore of the Pacific Ocean near the California-Mexico border. Photo taken probably in the late 1860 s by Dr. Perry and used in the original published description of A. shawii.



Eupomatia laurina in the Climatron. Note the petal-like stamens and the large spherical buds.

NOVEMBER-DECEMBER

DAY-BY-DAY

NOVEMBER

1-23 **Fall Flower Show**
9 a.m.-5 p.m. daily, Orthwein Floral Hall. Popular annual display including an abundance of beautiful chrysanthemums.

1-23 **"Botanical II"**
9 a.m.-5 p.m. daily, Monsanto Hall. The Garden's very own extensive collection of 500 years of botanical art and illustrations. Also an exhibit, "Flowering Arts," by Neal Deaton.

5& 6 **Holiday Preview Sale**
9 a.m.-8 p.m. daily, Garden Gate Shop. 20% off all items in plant and gift shop. Free refreshments served. For Garden Members only.

5 **Intermediate Floral Design**
7 p.m.-9 p.m. daily (first of three sessions), Ridgway Center. Learn additional ways to create contemporary non-traditional floral designs, $60 Members, $72 non-members. Call 577-5140 for details.

Flowering Indoor Plants
7 p.m.-9 p.m., Ridgway Center. Systematic study of the wide variety of flowering plants that can be successfully grown indoors, $6 Members, $7 non-members. Call 577-5140 for details.

7 **Nocturnal Awareness Hike**
8 p.m.-10:30 p.m., Shaw Arboretum. Come and discover the wonders and beauty of night, $4.50 Members, $5.50 non-members. Call 577-5138 for details.

8 **Finding Your Way With Map and Compass**
9 a.m.-3 p.m., Shaw Arboretum. Learn specific map reading techniques, what the compass will and won't tell you and how to find where you are on the map, $7 Members, $8.50 non-members. Call 577-5138 for details.

12 **Ornamental Shrubs**
7 p.m.-9 p.m., Ridgway Center. Learn which shrubs are best for your garden, $6 Members, $7 non-members. Call 577-5140 for details.

Pruning Indoor Plants
7 p.m.-9 p.m., Ridgway Center. Learn the proper techniques for dwarfing and shaping plants, the tools required and proper timing, $7 Members, $9 non-members. Call 577-5140 for details.

13 **Growing Azaleas**
7 p.m.-8:30 p.m., Ridgway Center. Learn the secrets of how to grow azaleas, rhododendrons and their relatives, $6 Members, $7 non-members. Call 577-5140 for details.

14 **Nocturnal Awareness Hike**
See November 7.

16 **The Making Of A Flower Show**
2 p.m., Shoenberg Auditorium. November Members' Day. A narrated slideshow of the construction of the Fall Flower Show. No reservations required, but seating is limited.

18 **Nut Trees For The Home Garden**
7 p.m.-9 p.m., Ridgway Center. The selection, culture and pest control of nut trees for home gardens will be covered, $6 Members, $7 non-members. Call 577-5140 for details.

22 **Winter Botany**
10:30 a.m.-12:30 p.m. (first of two sessions), Ridgway Center. Discuss the plants native and commonly cultivated around St. Louis with a focus on woody plants, $12 Members, $15 non-members. Call 577-5140 for details.

Fall Cornucopia
10:30 a.m.-12 p.m., Ridgway Center. A family activity that includes making a cornucopia of colored leaves and fall produce that can be used as a table decoration for Thanksgiving, Members: $9 adults, $7 children. Non-members: $10 adults, $8 children. Call 577-5140 for details.

27 **Thanksgiving**
The Garden will be open 9 a.m.-5 p.m.

Fooled you! The beautiful stone ballustrade adorning this year's Fall Flower Show is really made up of a child's toy bowling pin set, shower curtain rings and styrofoam painted with Elmer's glue and rolled in crushed stone. To learn more "tricks of the trade" attend the _Making of a Flower Show_ lecture on November 16.

NOVEMBER-DECEMBER

DAY-BY-DAY

DECEMBER

5 **Members' Preview Holiday Flower Show**
5 p.m-8 p.m., Orthwein Floral Hall. A little piece of the Swiss Alps comes to the Garden. Holiday tree exhibit in Monsanto Hall. For Members Only.

Nocturnal Awareness Hike
See November 7.

6 **Holiday Flower Show**
9 a.m.-5 p.m. daily, Orthwein Floral Hall. One of the Garden's popular annual flower shows with this year's Swiss theme that will feature a chalet, snow, pine trees, and lots of poinsettia, holly and other traditional holiday plants. *Through January 4.*

Holiday Tree Exhibit
9 a.m.-5 p.m. daily, Monsanto Hall. Six up and coming local floral designers will create Christmas trees with different European countries as their themes. *Through January 4.*

Family Wreath Making
10:30 a.m.-12 p.m., Ridgway Center. Deck the halls and fill your house with the seasonal scents of beautiful wreaths made from fresh cut evergreen boughs. Members: $5 adults, $3 children. Non-members: $6 adults, $4 children. Call 577-5140 for details.

7 **River Styx**
8 p.m., Shoenberg Auditorium. Physician, essayist and author Richard Selzer with music by Seth and Maryse Carlin. Call 361-0043 for ticket information.

10 **Candlelight Tour of Tower Grove House**
4:30 p.m.-7:30 p.m. Fourth annual candlelight tour of Henry Shaw's country home decorated for the holidays. $5 per person. Advance registration required by calling 577-5150. (See page 17.)

11 **Members' Bach Society Concert and Champagne Reception**
6:30 p.m.-9 p.m., Shoenberg Auditorium. Watch your mail for details and reservation information.

11-13 **Holiday Plant Sale**
9 a.m.-7:30 p.m. Thurs. & Fri., 9 a.m.-5 p.m. Sat., Garden Gate Shop. Members receive 20% off all items in plant and gift shop.

11 **Della Robbia**
10 a.m.-12 p.m., Ridgway Center. Learn the 18th century art of decorating evergreen wreaths with fresh fruit, nuts and seed pods. $20 Members, $24 non-members. Call 577-5140 for details.

12 **Wreath and Centerpiece Workshop**
10 a.m.-12 p.m., Ridgway Center. Create a beautiful holiday wreath and centerpiece with an assortment of evergreens such as fir, pine, juniper, holly and arborvitae, $25 Members, $30 non-members. Call 577-5140 for details.

Nocturnal Awareness Hike
See November 7.

13 **Wreath and Centerpiece Workshop**
See December 12.

Santa Lucia Celebration
11 a.m.-5 p.m. Festivities honoring Saint Lucia, the Swedish saint who brings light, hope and peace to all. Activities include carolers, folk-dancing and a candlelight procession. Sponsored in conjunction with the Swedish Council of St. Louis.

16 **Supper With Santa**
Two seatings in the Gardenview Restaurant at 5 p.m. and 6:15 p.m. Enjoy dinner with Santa along with puppets, a mime, holiday treats and more. $10 per person. Photos with Santa $4 per person. Advance registration required by calling 577-5125 beginning December 1.

17 **St. Louis Black Repertory Company**
7 p.m., Shoenberg Auditorium. Musical production featuring vocal excerpts from the *Missa Luba* and other seasonal works. $6 Members, $7 non-members. Tickets go on sale Dec. 1 at the Ridgway Center ticket counter. The performance is partially funded by the Missouri Arts Council.

20 **Sounds of Christmas**
11 a.m.-3 p.m., Ridgway Center. Performances of string quartets, carolers and others.

25 **Christmas Day**
The one day of the year when the Garden is closed. Have a happy holiday season!

NEW DIRECTOR OF RESEARCH

Enrique Forero Appointed

Dr. Forero

Dr. Enrique Forero, a professor at the Institute of Natural Sciences, National University of Colombia, Bogotá, Colombia, became Director of Research at the Garden, effective October 1, 1986.

As Director of Research, Forero will have supervisory responsibility for the Garden's research staff and program, and for its collections of dried plants (herbarium specimens), now numbering some 3.5 million. He will continue his own personal active program of research and exploration and pursue his teaching activities in St. Louis. Dr. Marshall R. Crosby, who has served as Director of Research since 1977, will retain a portion of his responsibilities as Director of Botanical Information Resources, supervising the Garden's scientific publications, computer services in relation to research, library, and research on mosses, his specialty.

"We are very fortunate to have been able to secure the services of a scientist of Dr. Forero's exceptional qualifications," said Garden Director Peter Raven. "With his wide connections in Latin America, he will be particularly sensitive to the requirements for the development of botany in the region and will be able to assist the Garden in the effective execution of its research programs there. We look forward with keen anticipation to his arrival in St. Louis."

Born in Bogotá in 1942, Forero carried out his undergraduate studies at the National University of Colombia and obtained his Ph.D. degree at the City University of New York, in association with The New York Botanical Garden in 1972. Subsequently, he served as Director of the Colombian National Herbarium and for several years as Chairman of the Botany Section in the Institute of Natural Sciences at the National University of Colombia. In 1977-78, Forero was the recipient of a Guggenheim Fellowship, carrying out studies at The New York Botanical Garden and elsewhere in the United States during that period of time. He has taught graduate courses in Manaus and São Paulo in Brazil; at Mérida, Venezuela; and at the University of Aarhus, Denmark. He has given numerous papers at botanical and other biological meetings throughout Latin America, Europe and the United States. He is widely known and respected internationally and organized the IV Latin American Congress of Botany held in Medellín, Colombia, in early July, 1986. He serves as Permanent Secretary of the Latin American Botanical Association, serving as President of the Organizing Committee.

During the course of his botanical studies in Colombia, Forero has been a pioneer in the use of computers in organizing herbarium information and has specialized on the flora of the Chocó, the very wet stretch of tropical lowland forest that occupies much of the Pacific coastal area of Colombia. In addition, he is a specialist on several families of flowering plants, including the legumes (Leguminosae) and Connaraceae.

Forero is also a member of several botanical societies in the United States and Latin American and has served as President of the Flora Neotropica Organization since 1981. He is a Fellow of the Linnean Society of London as well.

Trustee Profile

DANIEL L. SCHLAFLY

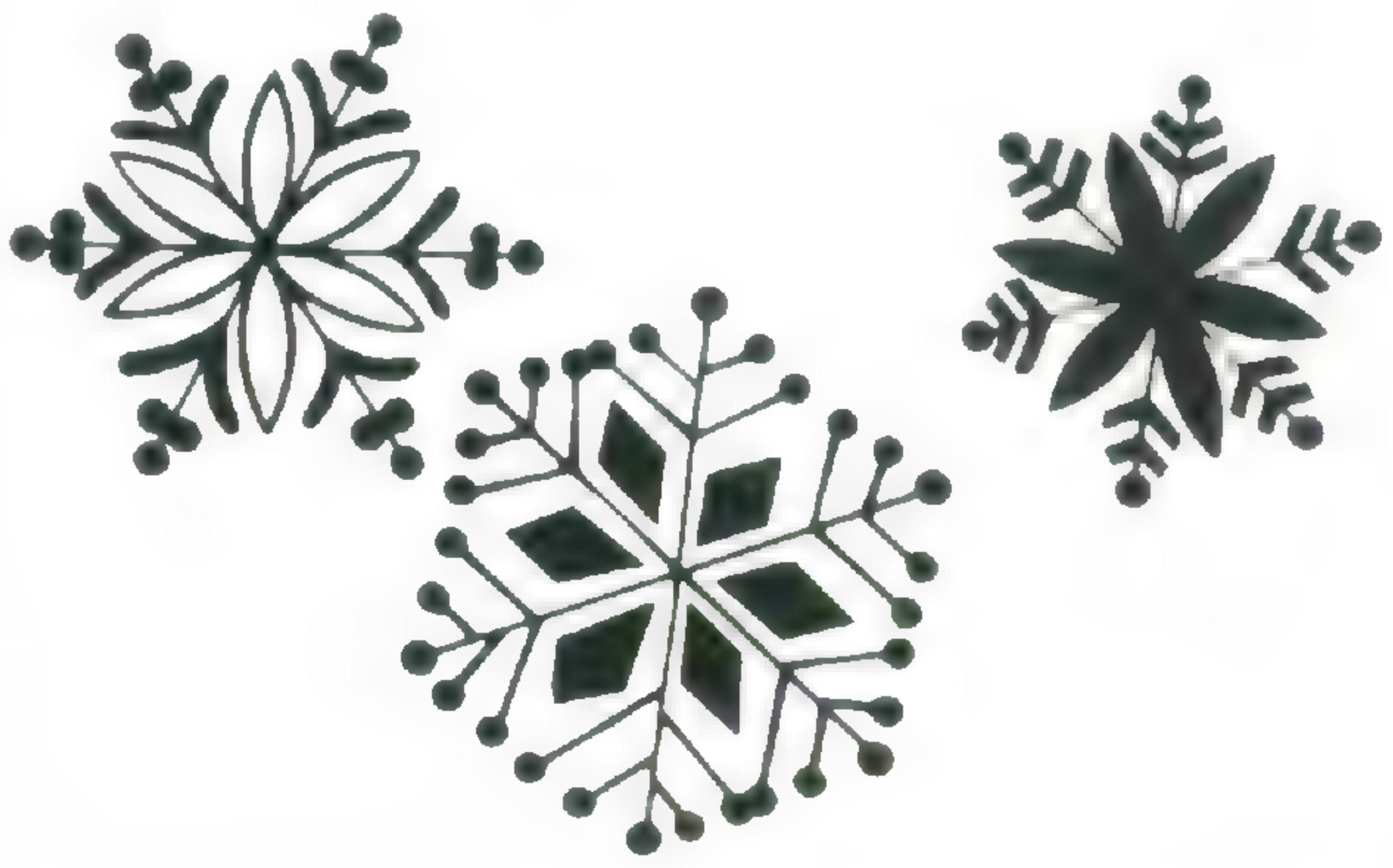
"It is hard to believe it is the same place," said Trustee Emeritus Daniel L. Schlafly describing the changes which have taken place at the Garden since he first served on the board of trustees in 1961. "The Garden has grown to become an institution with an international reputation for its research, displays and community programs because of the high quality with which it does things."

Schlafly served as an ex-officio member of the board from 1961 to 1963 while he was president of the St. Louis School Board, a board on which he served for 28 years. He was elected as a regular member of the board in 1972 and was named emeritus in 1982. He served on the board of St. Louis University from 1967 until 1978 and was its chairman when the university first allowed lay members on its board. He was also chairman of the board of the Arkansas Beverage Co. Schlafly is a native of St. Louis and graduate of Georgetown University.

"The Garden has benefited from Peter Raven's leadership and his ability to make this a revitalized and dynamic institution," Schlafly said. "He has built the Garden into a tremendous cultural asset not only for St. Louis but for the nation."

Asked to evaluate the Garden's board of trustees based on his extensive experience with other boards, Schlafly said, "This is a good board, a working board. They know the difference between policy making and administration. They are well informed and they do their homework. I think this board could serve as a prototype for what a board should be."

"The value of the Garden is reflected by the community support it receives via tax support," he said. "This is clear proof of the widespread support of the community. It is very exciting to be associated with the Garden."



Garden Acquires World-Renowned Book Collection

The Garden has purchased one of the most comprehensive collections of books on the history of natural history in the world. The world-renowned, 4,500-title Joseph Ewan Collection will add to the Garden's already extensive library collection. Ewan, regarded by many as the most eminent historian of botanical science, has accompanied the collection to St. Louis.

"The Joseph Ewan Collection is an extremely valuable acquisition for the Garden," said Garden Director Dr. Peter H. Raven. "The historical significance of the collection, its relevance to the work we do, and the respect Joseph Ewan commands in the scientific community make this announcement one of the most exciting I've made while at the Garden."

The collection consists of four parts: biographies of naturalists and scientists, biographical dictionaries and bibliographical tools; travels; taxonomy; and personal correspondence and files. The collection is especially strong in the areas of botanical biography and exploration. Approximately 2,500 of the titles focus on exploration and travels, 1,000 of which include South America.

Joe and Nesta Ewan preparing to unpack their extensive collection of botanical literature in the Museum Building.

The oldest title in the collection is a 1575 Italian translation of a book by Nicholas Monardes that Ewan purchased from a second-hand book dealer in New Orleans in the early 1960s. Another well-known book in the Ewan Collection is a copy of John Steinbeck's "Sea of Cortez" personally inscribed by the author to a friend.

Ewan taught botany at Tulane University from 1947 to 1977. He was the Ida Richardson Professor Emeritus of Botany at the university until his recent relocation to St. Louis with Nesta, his wife of 51 years.

With several organizations eager to acquire his book collection, Ewan chose the Missouri Botanical Garden for a variety of reasons. The Garden allows him unlimited access to the collection (which is important as he is currently working on a biography of 18th century botanist and naturalist Benjamin Smith Barton and a bibliography of travel narratives by naturalists to South American entitled "Andes and Amazon".) He was also impressed with the Garden's strong involvement in Latin America, an area of heavy emphasis in his collection. Ewan also thinks the Garden's program will provide the best long-term, consistent use of the collection.

Garden Botanist Receives Grant for Work on Philodendron

The National Science Foundation has awarded Garden botanist Dr. Mike Grayum a grant of $54,583 for a project entitled "Systematic investigations on *Philodendron* section *Pteromischum* (Araceae)." The award is effective from July 1, 1986 to July 1, 1989.

The genus *Philodendron* belongs to the Araceae, or jack-in-the-pulpit family, which, in spite of the familiar North American species that provides the common name, is almost entirely tropical. The section *Pteromischum* is a natural and well-defined taxonomic subgroup of *Philodendron*.

The grant will allow Grayum to clear up the taxonomic confusion that surrounds section *Pteromischum* in Central America and the West Indies by characterizing and correctly assigning names to already described species, and by describing and christening species new to science. *Pteromischum* is the most poorly understood and least studied subgroup of *Philodendron*.

In addition to routine field work in Costa Rica and Panama, Grayum will make extended collecting expeditions to Chiapas and Veracruz in southern Mexico, to the Darién region of eastern Panama, and to the Chocó region of western Colombia and Ecuador. Grayum will also do a study of floral biology in *Pteromischum* over an 18-month period at a biological field station, Finca La Selva, on the Caribbean slope of Costa Rica.

Grayum has spent much of the last eight years doing field work in southern Central America, and is one of the over 30 Ph.D. scientists on staff at the Garden.

Tree Conservation Project Gets Another Boost

A second matching grant of $25,000 from the Institute of Museum Services (IMS) has been awarded to the Garden for preservation work on its tree collection.

More than 2,000 trees representing 200 species can be found on Garden grounds. The collection includes several trees planted by Garden founder Henry Shaw in 1859, the same year the Garden opened to the public. Shaw's Garden is the oldest botanical garden in the United States.

"The IMS grant will enable us to install lightning protection and effect other measures which will ensure the longevity of our venerable tree collection," said Alan Godlewski, chief horticulturist for the Garden and principal project director for the grant.

The first matching grant of $25,000 by IMS was issued in the fall of 1985 and helped get the tree conservation project started. Other conservation measures either completed or planned include pruning for safety and aesthetics, and fertilization and injection of the trees for disease and insect control. The total cost of the project is estimated to be $100,000, with a completion date of fall, 1987.

IMS is a federal agency that offers conservation project support to the nation's museums.

FROM THE MEMBERSHIP OFFICE

Henry Shaw Fund Campaign

Every year Members are asked by phone, by mail or in person, to consider making an annual gift to the Garden. Annual giving is one way that you can make a difference in how the Garden operates. Gifts for unrestricted operating allow the Garden to ensure the quality of programs and expand services where needs are seen.

With the pending changes in tax laws scheduled for next year, this might be a particularly appropriate time for you to consider the Garden in your giving plans. All gifts to the Garden are appreciated and it is your support that enables the Garden to serve the community. The Development office would be pleased to discuss special gifts with you or answer any questions. Please call Patricia Rich at 577-5120.

Holiday Gift Giving

The easiest bit of shopping you can do this holiday season is giving the Gift of the Garden. It's as easy as picking up your phone and dialing 577-5118 to send your friends anywhere a Garden membership. Each gift recipient will receive a holiday greeting from you, along with a 1986 Missouri Botanical Garden Limited Edition Tree Ornament mailed to their home. Call today or complete the gift order form below. Discounts for multiple membership gift orders are available.

1987 Members' Days

Looking to the coming year, the Membership department is planning a host of special Members' Days for its loyal Members. These 1987 Members' Days will include:

- Climatron Tour
- Organic Gardening Lecture
- Tree Conservation at the Garden
- Children's Day
- Purple Martin Evening
- Lehmann Building Tour
- Members' Musical Evening
- A Rise and Shine Walk at the Garden
- Dawn Photo Session at the Arboretum
- Cider Stroll and Carillon Concert
- Senior Members' Day
- Holiday Decorating Demonstration

Watch for details in future issues of the *Bulletin* and for your special invitations in the mail.

OFFICE RECEIVES CHALLENGE GRANT

The Garden's membership office has received a matching challenge grant of $25,000 from The Times Mirror Foundation. The grant will be used to help strengthen the Garden's base of unrestricted operating support from Sept. 1, 1986 to Aug. 30, 1987.

"The help of The Times Mirror Foundation will give momentum to our campaign to substantially increase the Garden's base of donors," said Dana Hines, membership coordinator.

Times Mirror will match one-for-one the gifts of new Members in the upper levels (one-year memberships of $75 to $2,500) as well as increased gifts of current Members upgrading their membership levels.

Attracting new upper-level members and encouraging current supporters to upgrade their memberships is important to the day-to-day operation of the Garden. In 1985, membership contributions from more than 16,500 households totaled $777,000, 13 percent of the Garden's unrestricted operating budget.

Times Mirror is engaged in a wide variety of media communication activities. The three St. Louis subsidiaries of Times Mirror are the C.V. Mosby Co., KTVI-TV Channel 2 and The Sporting News Publishing Co.

GIFT MEMBERSHIP ORDER FORM — *Please mail at least three weeks prior to occasion:*

☐ Birthday ☐ Holidays ☐ Other ____________________

Gift To:

NAME ____________________

ADDRESS ____________________

CITY __________ STATE __________ ZIP __________

TELEPHONE ____________________

Sign gift card: ____________________

Date Needed By: ____________________

Regular Membership $35. Contributing Membership $75.

For more information call 577-5118.

Gift From:

NAME ____________________

ADDRESS ____________________

CITY __________ STATE __________ ZIP __________

TELEPHONE ____________________

☐ Enclosed is my check for $ __________

☐ Please charge: VISA No. __________

MasterCard No. __________

Name as it appears on card: __________

Expiration date: __________

Please make checks payable to: Membership Office, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166.

Behind the Scenes

Dana Hines Elected President of Shaw Neighborhood Association

Dana Hines, the Garden's membership coordinator, has been elected president of the Shaw Neighborhood Improvement Association. The association, which has been in existence for over 25 years, serves 500 member families who live in the area surrounding the Missouri Botanical Garden. The Shaw Neighborhood Association's mission of improving the neighborhood is carried out through house tours, special events, and other neighborhood-marketing efforts, in addition to employing various strategies for neighborhood improvements. The Shaw neighborhood recently was designated a historic district.

Garden Horticulturist To Receive Top Honor

Alan P. Godlewski, director of horticulture, has been selected to receive the Thomas Roland Medal for "exceptional skill in horticulture" by the Massachusetts Horticultural Society, the nation's oldest horticultural society. The Roland Medal originated in 1927 and was last presented to a Missouri Botanical Garden horticulturist in 1940, when George H. Pring accepted the award.

Godlewski has been employed by the Missouri Botanical Garden since 1978 and has held his present position since 1982. Prior to coming to St. Louis, he was superintendent of gardens for Filoli Center in California, a 25-acre National Trust garden.

15 Years at the Garden

Two more staff members have joined a very select group of people who have been employed by the Garden for 15 years or more. Joining the cadre of long time employees are Marie Cook of the Spink Gallery and Walt Behrendt of the Horticulture department.

Plant Talk
From the Gardenview Restaurant

Cranberries

FOOD FACTS:

Rising on slender stems above the small oval leaves of this creeping shrub, the delicate pale pink flowers with reflexed petals and beak-like stamens reminded early settlers of the outstretched neck and head of the crane in silhouette. Or at least that is one of the stories that purports to account for the name of this American fall favorite, the cranberry.

The cranberry is a member of the heath family (Ericaceae). It is related to the rhododendrons, azaleas, heaths, heathers, and another popular fruit, the blueberry. Two varieties of cranberry grow wild, the familiar large cranberry (*Vaccinium macrocarpon*) and the small cranberry (*Vaccinium oxycoccos*). Due to its popularity the large cranberry is cultivated extensively in Massachusetts, New Jersey, Washington, Oregon and, most abundantly in Wisconsin. Unless you have gotten your feet wet hiking through boggy areas, you have probably never seen the small cranberry as the size of its fruit makes it less desirable for cultivation than the large.

Because cranberries ripen late in the season and store well, they have long been a traditional part of Thanksgiving and Christmas celebrations. Turkey with cranberry sauce is so traditional that General Ulysses S. Grant had cranberries shipped to Union soldiers during the Civil War so that they might enjoy them with their Thanksgiving meal.

— Linda Sanford
Youth Education Coordinator

Kid's Tip

The traditional uses of cranberries include not only the cranberry sauce served with the Christmas turkey, but the strings of cranberries decorating the Christmas tree. Since these bright red berries are slow to spoil, they can be prepared a week or more before Christmas and still be bright and shiny on Christmas morning.

Buy a package or two of cranberries at the grocery store. Carefully sort through the berries, discarding any that are soft or wrinkled. While sorting through the berries, take a close look at their shape. They are not quite round, but more oval in shape. Can you find the place where each berry was attached to the plant? Can you find the remains of the flower?

Use thread and a sewing needle to string the cranberries together. Push the needle through the middle of the berry from either the stem or flower end. String as many berries together as you like, long garlands look best on the tree. Short garlands can be tied together and may be easier to handle.

If you would like the cranberries to remain fresh looking for a long period of time, wax them. Covering them with a layer of acrylic floor wax will keep the air and any bacteria that might cause rot away from the fruit for a while. Simply pour some acrylic floor wax into a shallow tray or pan. Roll the strings of cranberries through the wax, covering the entire surface of each berry. Hang the cranberries up to dry and then they are ready to be added to your Christmas tree.

"Far off in the fields, on the edge of a cranberry bog, stood the hut of the Cubbins family." — From *The 500 Hats of Bartholomew Cubbins*, by Dr. Seuss.

FOOD TIPS:

Brown Rice Stuffing with Cranberries

1 cup raw brown rice
2 cups chicken broth
1¼ cups cranberries
3 tablespoons water
⅓ cups plus 2 tablespoons loose brown sugar
½ cup chopped celery
1 tablespoon butter
1 tablespoon chopped fresh parsley

1. Wash the rice and cook it, covered in the chicken broth for 45 minutes on a low flame. Meanwhile, cook the cranberries, uncovered, in the water and brown sugar until they pop but are still whole. Brown the celery in the butter in a saucepan.

2. Mix together the berries and their syrup, the rice, celery, and parsley. Use as a stuffing or pass separately as a side dish.

Serves 4 to 6.

For Younger Members

Apples

The holiday season is rapidly approaching, bringing with it a host of traditional holiday foods. Many of these foods are made with **apples.** Hardly a holiday meal is served that does not include apple pie, apple sauce, muffins with apple butter, caramel apples, apple cider, sweet potatoes with apples, or apple dumplings.

There are many different kinds of apples, and each kind may be used in different ways. Some, like the Delicious apple, are eaten raw. Others, like the Rome Beauty, are best baked into pies. Some people think that Jonathan apples make the best apple sauce.

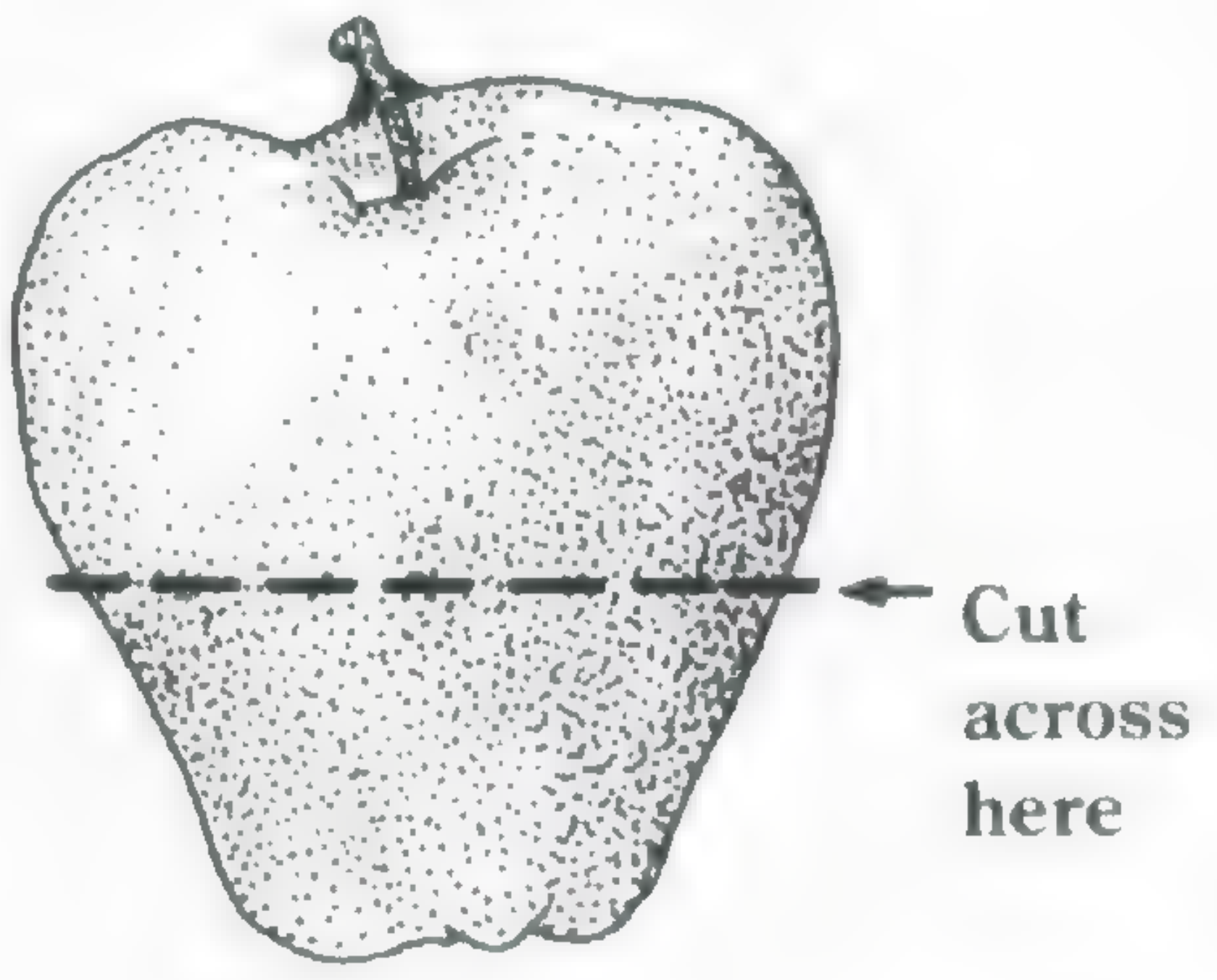
Early American settlers brought apple seeds and trees to America from England a long time ago. Indians planted apple seeds in their villages, helping to spread the growth of the trees westward. You may have also heard of a man known as "Johnny Appleseed." His real name was John Chapman. Everywhere he went, he carried apple seeds and planted them in places where early pioneers settled.

Today, apple trees are grown everywhere, except in the very hottest or very coldest parts of the world. The state of Washington grows the most apples in the United States. The apples are harvested in the fall. People stand on ladders or use long-handled "pickers" to pick apples from high branches. Perhaps you have visited one of the apple orchards in nearby Illinois, where you, too, can pick your own. Try some of the activities on this page with apples at home.

Find The Star

You will need: apple, knife.

What to do: Cut the apple in half. You will need to cut across the middle, not through the stem. (Figure 1) Turn the apple halves cut side up. Can you find the star in the center of each cut side?



Apple Heads

You will need: apple, knife, salt, water, bowl, oven.

What to do: Cut the core or center of the apple. Peel off all of the skin. As the apple begins to dry, pinch it in several places to form ears, eyes, nose, and mouth. Place salty water into a bowl. Soak the apple head in the salty water for about thirty minutes. This will prevent the apple from turning brown. Dry the apple in a 300° oven for about 15 minutes. When the apple head is dry, decorate it with moss, yarn, or dried grass. Stuff the ends of the moss or yarn into the empty core of the apple to make "hair" for the apple head. If you enjoy making apple heads, perhaps you could use them for holiday decorations or gifts.

— Ilene Follman
Education Consultant

PUZZLE

Find the Apples

Look up, down, and across to find the names of the apples listed below. Circle each name that you find in the puzzle.

Delicious
Granny Smith
Rome Beauty
Golden Delicious
Jonathan
McIntosh
Winesap

R	S	L	D	A	E	F	P	D	Z	R	C	F	R	G	Y
M	G	O	L	D	E	N	D	E	L	I	C	I	O	U	S
I	P	J	M	U	D	H	J	L	O	R	O	B	M	L	N
W	E	O	C	M	B	R	T	I	R	S	J	P	E	Q	D
X	T	N	I	R	C	F	D	C	O	O	H	G	B	K	A
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W	V	H	O	U	T	S	P	U	A	L	C	D	U	B	E
A	R	A	S	W	I	N	E	S	A	P	B	P	T	G	V
M	E	N	H	E	V	J	B	R	T	S	C	O	Y	U	J

TOWER GROVE HOUSE

Tower Grove House will again be decorated in Victorian splendor for the holidays and open to visitors from Tuesday, December 9, through Wednesday, December 31, from 10 a.m. to 4:30 p.m. The home and the Garden will be closed Christmas Day.

The Fourth Annual Candlelight Tour, sponsored by the Tower Grove House Auxiliary, will be held on Wednesday, December 10, between 4:30 and 7:30 p.m. Reservations may be made by mailing in the form below. For additional information call Tower Grove House, 577-5150. The fee includes a candlelight tour of the decorated house, plus refreshments in the Tea Room. Admission will be through the Cleveland Gate, 2221 Tower Grove, where your name will be registered.

Tower Grove House Auxiliary's Tea Room will again have Special Christmas Luncheons on Friday, December 12, Monday, December 15, Wednesday, December 17, and Thursday, December 18, 1986 between 11:30 and 1 p.m. Guests will be greeted with holiday punch. Reservations must be confirmed.

For additional information and reservations call 577-5150.

Please make ___ reservations for the Candlelight Tour, Wednesday, December 10, Tower Grove House between 4:30 and 7:30 p.m. Enclosed is my check for $ ______ , at $5.00 per person. Please make checks payable to: Tower Grove House Auxiliary.

NAME ______________________

ADDRESS ______________________

CITY ________ STATE ______ ZIP ______

PHONE ______________________

Mail to: Tower Grove House,
P.O. Box 299, St. Louis, MO 63166

The January Room and Study in Tower Grove House are open once again, following storm damage. G. J. Mauger Interiors, Inc. installed new lace curtains and draperies: the Tower Grove House Auxiliary funded the project. Please come to see the "new look" soon.

From the Garden Gate Shop

Holiday Preview Sale

The annual Holiday Preview Sale in the Garden Gate Shop is scheduled for Wednesday and Thursday, November 5 and 6 from 9 a.m. to 8 p.m. As always, the shop will feature the finest in gifts, toys, gardening tools, plants and merchandise appropriate for the season.

The beautiful 1987 Missouri Botanical Garden Calendar is available, the Missouri Botanical Garden Holiday Card, and the Missouri Botanical Garden scarf of Japanese silk featuring a magnificent array of wildflowers in their natural colors.

There are hundreds of wonderful gifts at the Garden Gate Shop. Best of all they are here in the relaxing atmosphere of the Garden with ample, free parking and knowledgeable staff and volunteers to help you.

As always, Members will receive a 20% discount on all items.

December Plant Sale

Dec. 11 & 12: 9 a.m. - 7:30 p.m.
Dec. 13: 9 a.m. - 5:00 p.m.

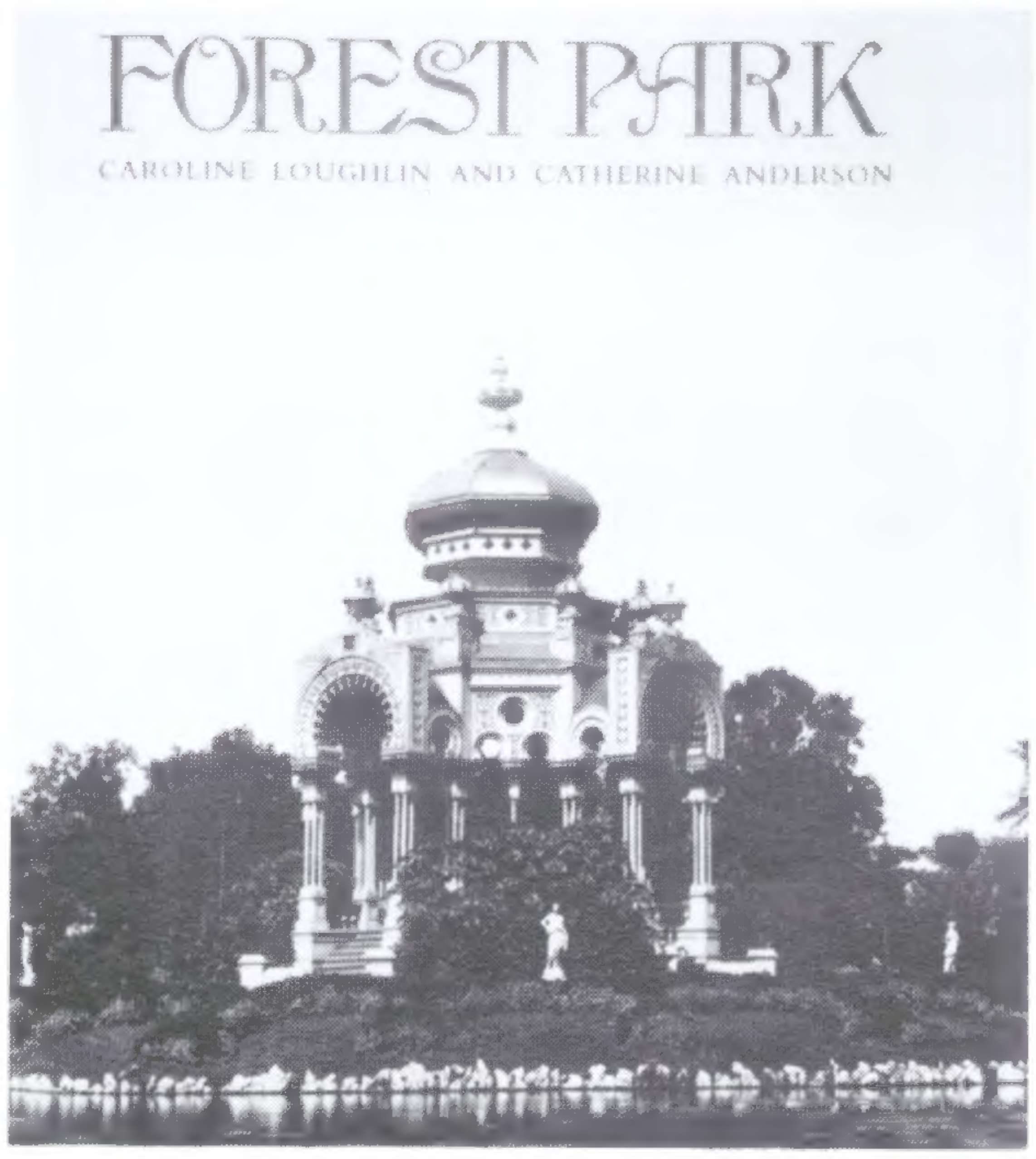
Take this opportunity to purchase Christmas plants, garden-related gifts and decorations for holiday entertaining and gift giving.

Selections include poinsettias, Christmas cactus, decorated pines, Amaryllis bulbs and paperwhite kits. For the gardener, we have tools, gloves, chimes, sundials and baskets. Birdfeeders of all descriptions available for bird watchers.

Members save 20% on all items.

Book Review *History of Forest Park*

by Caroline Loughlin and Catherine Anderson



FOREST PARK
CAROLINE LOUGHLIN AND CATHERINE ANDERSON

This new history of Forest Park recognizes that Henry Shaw, the Garden's founder, may well have had an important impact on that park as well. Says the book, "The story of Forest Park may have begun in April, 1863 at Tower Grove, the St. Louis County residence of Henry Shaw, a wealthy retired merchant and enthusiastic amateur botanist who established a botanical garden and opened it to the public in 1859. Frederick Law Olmsted, on leave as architect-in-chief and superintendent of New York Central Park, was in St. Louis . . . While he was in St. Louis, Olmsted called at Shaw's house in the botanical garden, and the two men almost certainly discussed large urban parks." Shaw also served on a board of commissioners for a "central park" for St. Louis, which was authorized by the Missouri legislature in February 1864.

Henry Shaw's legacy certainly extends far beyond the Missouri Botanical Garden. This new book is the result of five years of research by members of the Junior League of St. Louis and is on sale in the Garden Gate Shop for $29.95. It also features a number of pictures from the Missouri Botanical Garden's library and archives.

— Pat Rich

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Raven To Be Honored with International Prize

Garden director Dr. Peter H. Raven will become the second recipient of the International Prize for Biology, November 20, in Tokyo, Japan. Raven, a renowned botanist, will be recognized for his contribution to taxonomy, or systematic biology.

The International Prize for Biology was established to celebrate the 60-year reign of His Majesty the Emperor of Japan and to commemorate his longtime research in biology. The development of this prize in 1985 was widely hailed by the scientific community, as classical biologists have never been eligible for a Nobel Prize.

Raven will travel to Tokyo to receive the prize, which will be presented by Crown Prince Akihito. The momentous nature of the occasion is reflected by the 1985 ceremony, during which congratulatory addresses were offered by Prime Minister Yasuhiro Nakasone and the Minister of Education, Science and Culture, Hikaru Matsunaga. Following the ceremony, Raven will travel to Kyoto, where he will be the featured speaker for a scientific symposium at the University there.

Raven Receives Horticultural Award

Peter H. Raven, Garden director, was presented the prestigious 1986 Hutchinson Medal, the premier award of the Chicago Horticultural Society, on June 22, at the Chicago Botanic Garden.

The Hutchinson Medal recognizes an individual who, through great personal effort or sacrifice, has provided outstanding leadership of a professional or scientific nature, thus resulting in the significant presence of gardening or other horticultural progress, either locally or nationally.

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Two Major Features Added at the Garden

Work has begun on two new horticultural areas in the Garden, a daylily garden and a Victorian maze. The new daylily garden will be located alongside the knolls between the statue of Victory and the Alice Hahn Goodman Iris Garden providing views throughout the Garden. Alan Godlewski, director of horticulture, said, "The current path in that area will be realigned. It will be moved away from the outer stone wall and will weave among the existing trees. We plan to have drifts of daylilies, hydrangeas and grasses edged in brick and surrounded by grass paths." Benches will be placed throughout the area near shade trees.

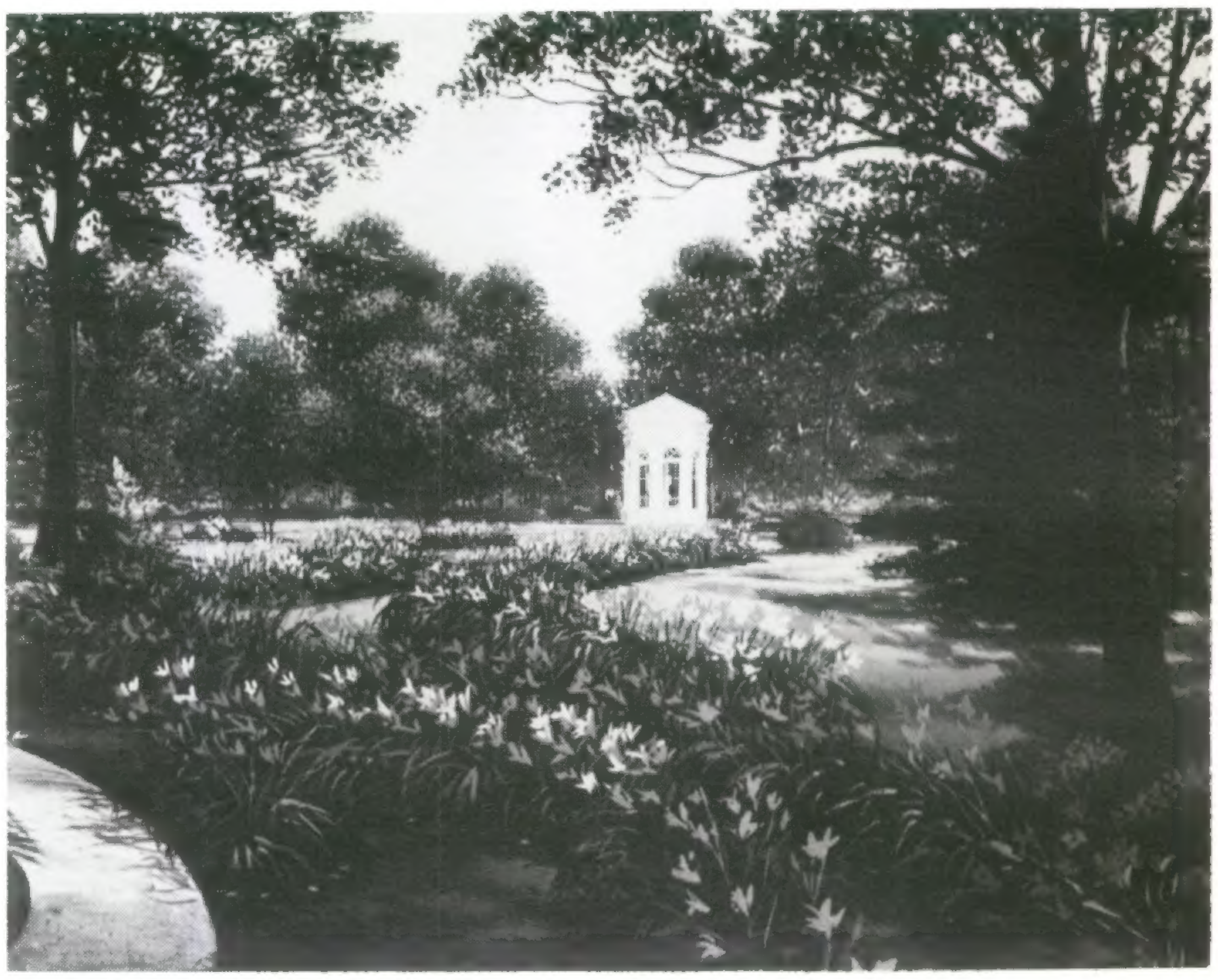
The display of daylilies will be named the Jenkins Daylily Garden. It has been made possible by a generous donation from Ada Jenkins Kling in memory of her husband, G. Stuart Jenkins. Construction work is expected to be finished by late fall.

The second major feature, a Victorian maze, will recreate in concept the maze constructed by Henry Shaw in the 1860s in Tower Grove Park. It will be located in the southern portion of the Garden between Tower Grove House and the Henry Shaw Townhouse.

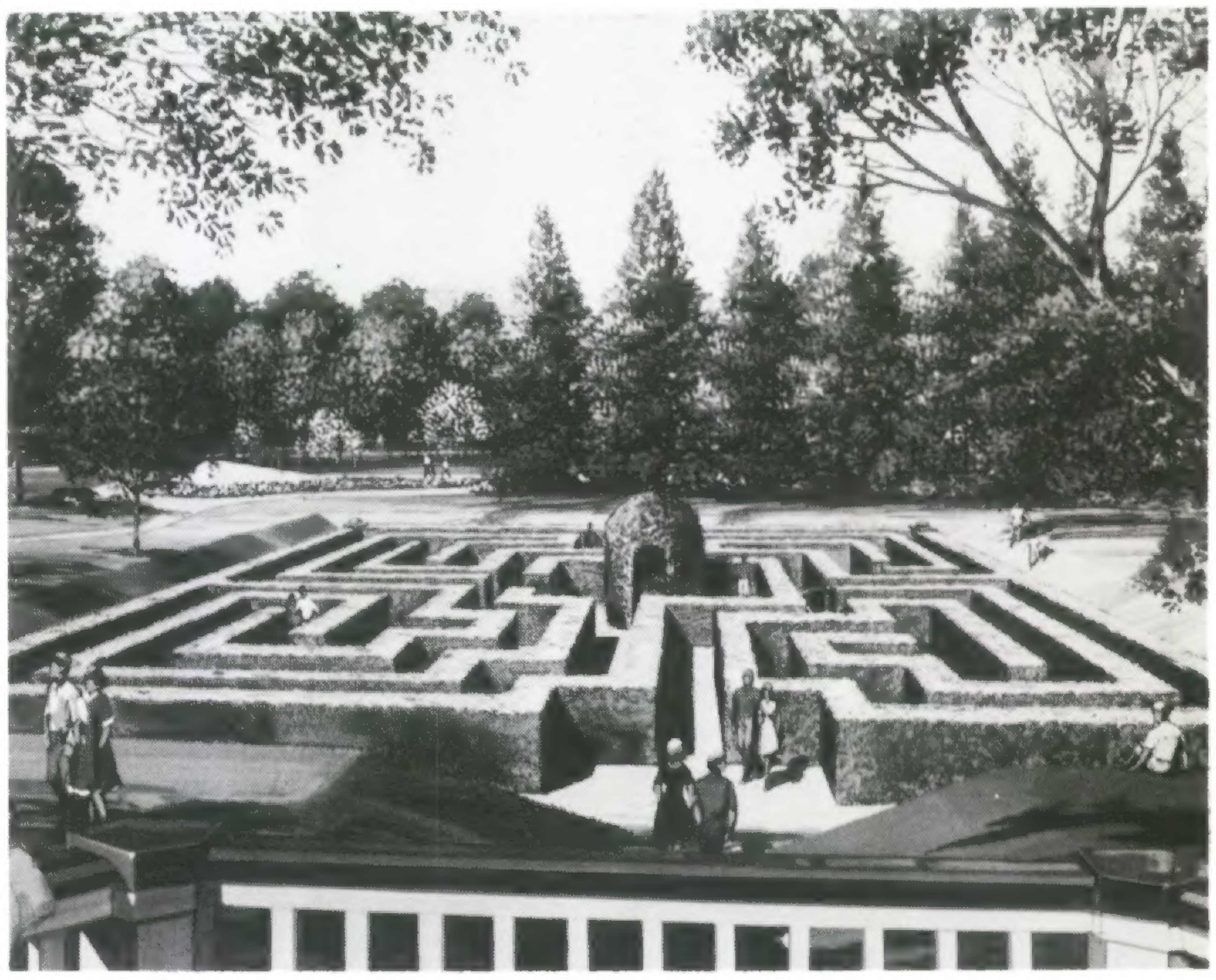
The Victorian maze will be designed as a labyrinth of hedges, 90 by 90 feet, through which visitors may wander. The outer edge will be of arborvitae. Inside privet hedges will alternate with gravel paths leading to a central vine-clad gazebo. The hedges will be maintained at a height of five and a half feet.

Godlewski pointed out, "The entire maze garden will be depressed two and a half feet so that persons on the outside can watch those on the inside as they journey through the maze." At a later date, we plan to build an observatory near the maze so people can view the intricate design from above."

The new maze feature will be dedicated as the Jennie Latzer Kaeser Memorial Maze. Its development is made possible through a bequest from Mrs. Kaeser and a gift from Mr. and Mrs. Vernon W. Piper, in honor of Mrs. Kaeser, who was Mrs. Piper's mother. The maze is expected to be completed this fall.



Jenkins Daylily Garden



Jennie Latzer Kaeser Memorial Maze

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